From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 01/06/2017 04:10:23 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: 1/6/17 RADE Task 5 Weekly Status
Attachments: DECD Weekly Status and Supplier List 010617.xlsx ITC Marketing Flyer E.docx

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Carmen,

1) CCAT has secured participation of three suppliers utilizing the ITC's GOM ATOS scanner. They are Flanagan, GKN and New England Airfoil Products (NEAP). Representatives of NEAP were at the ITC on 1/5/17 to witness the scanning capability on one of their airfoils.

2) The final draft of the Marketing Brochure (See attachment) has been approved and will be distributed to suppliers shortly and followed with phone, e-mail and face-to-face meetings to explain the benefits of utilizing the ITC for SLS technology demonstration projects.

3) A sustainability plan is being prepared for utilization of the ITC facility beyond the March 2017 Task 5 termination.

4) The Sub-Tasks, Deliverables and Metrics and a status of supplier participation in Task 5 have been revised to include the above activities (See attachment).

We can discuss these and other items at our scheduled 10:30 Conference call on Monday 1/9/17.

Regards,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Task 5 – Manufacturing Innovation

Increase CT Companies cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

	2016				2017			Goal
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	
Sub Tasks:								
5.1 Hire technical coordinator	In work	In work	Complete					
5.2 Acquire and/or lease machinery, equipment	In work	In work	Complete					
5.3 Installation of machinery and equipment	In work	In work	In work	Complete				
5.4 Perform outreach to supply chain	Ongoing							
5.5 Identify training needs								
5.5.1 GOM ATOS Scanner	Complete							
5.5.2 Supplier	0	0	0	2	2			
5.6 Deliver training (if/when appropriate)								
5.6.1 GOM ATOS Scanner			Initiated	Ongoing	Complete			
5.6.2 Supplier	0	0	0	0	2			
5.7 Process Improvement project implementation	See Supplier Milestones Worksheet							
5.8 Analyze/report on manufacturing innovation	Monthly						Final	
Deliverable:								
• CT Innovation Technology Center is established, operational, and staffed	In work	In work	In work	Complete				
• # Suppliers are aware of ITC and its capabilities	55	55	55	41	41			
• Participating companies staff trained on new processes and technologies	8	8	8	9	9			
• Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies	Monthly						Final	
• Manufacturing Technology Innovation Needs Statement	TBD	TBD	TBD	TBD				
Metrics:								
• A minimum of 20 supply chain companies participate	9	9	9	9	9			20
• A minimum of 10 projects implemented	0	0	0	2	4			10
• Available hours used on the equipment by suppliers	0	0	0	0	2			
• Number of projects	9	9	9	9	9			
• Equipment hours used	0	0	0	0	2			
• Equipment ordered by suppliers	0	0	0	0	0			
• Number of processes implementing by supplier in their facility	0	0	2	2	2			

Milestones and Timeline

Project Type	Project Description	Supplier Name	Status	Project Lead	Contacted	NDA	Site Visit	Agreement	Letter of Intent	Project Proposal	Execute	Final Report
Scanning	[redacted]	Aero Gear, Inc.	Active	CCAT	Planned by 1/15/2017							
Scanning		Birken Manufacturing	Active	CCAT	Planned by 1/15/2017							
Scanning		Flanagan Industries	Active	CCAT	12/15/2016	Yes					1/5/2017	
Scanning		GKN Aerospace	Active	CCAT	12/15/2016	Yes					1/5/2017	
Scanning		Gros-ite (EDAC)	Active	CCAT	Planned by 1/15/2017							
Scanning		Habco Industries	Active	CCAT	Planned by 1/15/2017							
Scanning		Hubbel	Active	CCAT	Planned by 1/15/2017							
Scanning		New England Airfoil Products	Active	CCAT	12/15/2016						1/5/2017	
Scanning		Reno Machine Company, Inc.	Active	CCAT	Planned by 1/15/2017							
Scanning		Whitcraft	Active	CCAT	Planned by 1/15/2017							
Equipment Recommendation		CAM Group LLC (Alloy Specialties Inc)	Active	Draper	4/15/2016		6/2/2016					
Equipment Recommendation and Engineering Services		Deburring House Inc.	Active	Draper	4/15/2016		6/1/2016					1130/16
Equipment Recommendation		Flanagan Industries (EDAC)	Active	Draper	4/15/2016		8/17/2016					
Process Improvement, Equipment Recommendation and Engineering Services		GKN Aerospace	Active	Draper	4/15/2016		7/26/2016					
Process Improvement and Equipment Recommendation		Habco Industries	Active	Draper	4/15/2016		5/4/2016					1130/16
Process Improvement and Equipment Recommendation		Jonal Laboratories, Inc.	Active	Draper	4/15/2016		7/20/2016					
Process Improvement		Admill Machine	Interested	Draper	9/22/2016							
Process Improvement		Avalon Advanced Tech	Interested	Draper	10/24/2016							
Process Improvement		Bauer, Inc.	Interested	Draper	9/22/2016							
Process Improvement		Budney Aerospace, Inc.	Interested	Draper	9/19/2016							
Process Improvement		Numet Machining Techniques, Inc.	Interested	Draper	9/22/2016							
Process Improvement		Paradigm Precision	Interested	Draper	10/27/2016							
Process Improvement		Reno Machine Company, Inc.	Interested	Draper	10/27/2016							
Scanning		Atlas	On Hold	CCAT								
Scanning		B&E Precision Aircraft Components	On Hold	CCAT								
Scanning		Curtis WrightSurface Technologies	On Hold	CCAT								
Scanning		LFI Inc.	On Hold	CCAT								

Scanning		Turbine Technologies, Inc.	On Hold	CCAT								
Scanning		Turbocam	On Hold	CCAT								

Supplier Screening & Participation Status

Project Type	Project Description	Supplier Name	Status	Project Lead	Results of Phone Screen	Follow Up/Notes
Equipment Recommendation	[redacted]	CAM Group LLC	Active	Draper	Confirmed Interested	[redacted]
Equipment Recommendation		Flanagan Industries (EDAC)	Active	Draper	Confirmed Interested	
Process Improvement		Avalon Advanced Tech	Active	Draper	Initial Interest	
Scanning		Aero Gear, Inc.	Active	CCAT	Investigating	
Scanning		Birken Manufacturing	Active	CCAT	Investigating	
Scanning		Gros-ite (EDAC)	Active	CCAT	Investigating	
Scanning		Habco Industries	Active	CCAT	Investigating	
Scanning		Hubbel	Active	CCAT	Investigating	
Scanning		Reno Machine Company, Inc.	Active	CCAT	Investigating	
Scanning		Whitcraft, LLC	Active	CCAT	Investigating	
Equipment Recommendation and Engineering Services		Deburring House Inc.	Active	Draper	Participating	
Scanning		Flanagan Industries	Active	CCAT	Participating	
Scanning		GKN Aerospace	Active	CCAT	Participating	
Process Improvement,		GKN Aerospace	Active	Draper	Participating	
Process Improvement and Equipment Recommendation		Habco Industries	Active	Draper	Participating	
Process Improvement and Equipment Recommendation		Jonal Laboratories, Inc.	Active	Draper	Participating	
Scanning		New England Airfoil Products	Active	CCAT	Participating	
Process Improvement		Alloy Specialties, Inc.	On Hold	Draper	Confirmed Interested	
Process Improvement		Admill Machine	On Hold	Draper	Initial Interest	
Process Improvement		Bauer, Inc.	On Hold	Draper	Initial Interest	

Process Improvement	[redacted]	Budney Aerospace, Inc.	On Hold	Draper	Initial Interest	[redacted]
Process Improvement		Numet Machining Techniques, Inc.	On Hold	Draper	Initial Interest	
Process Improvement		Paradigm Precision	On Hold	Draper	Initial Interest	
Process Improvement		Reno Machine Company, Inc.	On Hold	Draper	Initial Interest	
Scanning		Atlas	On Hold	CCAT	Potential	
Scanning		B&E Precision Aircraft Components	On Hold	CCAT	Potential	
Scanning		Curtis WrightSurface Technologies	On Hold	CCAT	Potential	
Scanning		FI Inc.	On Hold	CCAT	Potential	
Scanning		Turbine Technologies, Inc.	On Hold	CCAT	Potential	
Scanning		Turbocam	On Hold	CCAT	Potential	
Process Improvement		Aero Gear, Inc.	Remove	Draper	No Response	
Process Improvement		Alinabal, Inc.	Remove	Draper	No Response	
Process Improvement		Birken Manufacturing	Remove	Draper	No Response	
Process Improvement		E.A. Patten Co	Remove	Draper	No Response	
Process Improvement		Polamer Precision	Remove	Draper	No Response	
Process Improvement		Ramar-Hall, Inc.	Remove	Draper	No Response	
Process Improvement		Satellite Tool & Machine Co.	Remove	Draper	No Response	
Process Improvement		AGC Incorporated	Remove	Draper	No Response	
Process Improvement		Airex Rubber Products Corp.	Remove	Draper	No Response	
Process Improvement		Cambridge Specialty Co	Remove	Draper	No Response	
Process Improvement		E&S Gage Company	Remove	Draper	No Response	
Process Improvement		EDAC Aero.	Remove	Draper	No Response	
Process Improvement		Harco Laboratories, Inc.	Remove	Draper	No Response	
Process Improvement		Har-Conn Chrome Company	Remove	Draper	No Response	
Process Improvement		Metallizing Service Co.	Remove	Draper	No Response	
Process Improvement		Praxair Surface Technologies, Inc.	Remove	Draper	No Response	
Process Improvement		Service Steel Aerospace	Remove	Draper	No Response	
Process Improvement		Sterling Engineering Corp.	Remove	Draper	No Response	
Process Improvement		Timken Aerospace Drive Systems	Remove	Draper	No Response	
Process Improvement		Turbine Technologies, Inc.	Remove	Draper	No Response	
Process Improvement		Whitcraft, LLC	Remove	Draper	No Response	

Innovation Technology Center (ITC)

The State of Connecticut is looking for Connecticut defense manufacturers who want to evaluate if Structured Light Scanning (SLS) technology works for them. CT manufacturers can have a Demonstration Project performed at the newly constructed ITC. The ITC is sponsored by the Department of Defense Office of Economic Adjustment and the Connecticut Department of Economic and Community Development. The ITC is 1000 ft^2 of lab space managed by the Connecticut Center for Advanced Technology Inc. (CCAT) in East Hartford. There is no cost to participate.

WHAT IS A DEMONSTRATION PROJECT?

A demonstration project will allow CT manufacturers to evaluate structured light scanning technology against technologies (CMM or manual inspections) they are currently using. This will be done by using new technology on real parts and comparing results to what suppliers currently are achieving. A Structured Light Scanning Demonstration Project will allow suppliers to have one of their own manufactured parts scanned using the structured, blue light scanner available at the ITC:

- The GOM ATOS Scanbox 5108 is an optical 3D measuring machine developed for quality control in larger production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. (GOM Website)

CCAT personnel will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so that results from the new technology can be compared directly to results from the current technology being used by the supplier.

WHY DO AN SLS DEMONSTRATION PROJECT AT THE ITC?

- Mechanical measuring machines capture data in a point-based or linear manner while optical 3D coordinate measuring systems provide full-field deviations of 3D actual coordinates and CAD data
- The GOM ATOS machine is one example of optical scanning technology
- Compare new technology capabilities to current technology capabilities
- Evaluate impact on effectiveness, efficiency and productivity of new technology
- A Demonstration Project is FREE to CT defense manufacturers

A Non-Disclosure Agreement (NDA) can be executed to protect the manufacturer's process knowledge. CCAT is an ITAR controlled facility.

HOW DO I APPLY?

Complete the simple on-line application by going to the ITC Assistance Application and checking the box for "Structured light scanning/reverse engineering", or contact Mr. Wayne Sumple at CCAT or Mr. Ken Devins at Belcan.

Wayne Sumple
CCAT's Advanced Manufacturing Center
409 Silver Lane
East Hartford, CT. 06118
wsumple@ccat.us
860-282-4222

Ken Devins
Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
kdevins@belcan.com
860-683-5367

DEMONSTRATION PROJECT PROCESS

1. CT manufacturer to sign Non-Disclosure Agreement (NDA)
2. CT manufacturer to sign Export Control Intake Certification (ECIC)
3. CT manufacturer to complete Assistance Application for Structured Light Scanning
    a. Describe part(s) to be scanned
        i. Name of part
        ii. # of parts
        iii. Special handling instructions
    b. STRUCTURED LIGHT SCANNING (SLS)
        i. Identify data to be gathered during SLS demonstration project
            1. Time to process
            2. Cost to process - material consumed during process
            3. Metrology criteria – list of specific measurements or dimensional values required for evaluation of SLS
            4. Comparison of new measurements or dimensional values generated with SLS in the ITC to existing data taken by the SME at their facility
            5. Shipping/receiving instructions
    c. Provide format for report data
    d. Identify how part(s) will be delivered to/from ITC
        i. Supplier to hand carry to ITC
        ii. Supplier to ship to ITC

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 01/13/2017 11:05:00 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: 1-12-17 RADE 2 Task 5 Weekly Status
Attachments: Justification for ITC Non-Destructive Inspection Equipment (Draft 13-Jan-17) (2).docx Supplier Status Draper 1-12-17.xlsx Supplier Status CCAT 1-12-17.xlsx

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Carmen,

1) Met with CCAT representatives (Wayne Sumple, Don Balducci, Jeff Crandall & Tom Maloney) to develop plans for ITC sustainment beyond the Task 5 contract end date and justification for the addition of an X-Ray Scanner to the ITC.

   a. ITC Sustainment - The view of the team is that ITC Sustainment can be accomplished in concert with current and future Connecticut Manufacturing Supply Chain Initiative (CMSCI) grants. CMSCI funding could provide CCAT staff and facility to support the GOM ATOS as well as any additional ITC acquired equipment, such as the proposed X-Ray Scanner.

   b. X-Ray Scanner justification – Tom Maloney has provided the latest information on the alternative x-ray scanning equipment considered for purchase and installation at the ITC in the attachment with a summary below. The University of Hartford has researched the alternative scanner suppliers and recommended the Nikon 225. They have been asked to fill gaps in the table for the other suppliers.

Feature	Nikon 225	GE Speed Scan CT 64	Microphotonics	Procon CT-Alpha
Machine footprint	4' x 8'	8' x 13'	TBD	TBD
Machine weight	4,200 kg	13,000 kg	TBD	2,600 kg
Approx. Part Size / Area Capability	14" x 17"	24" x 35"	8" x 8"	12" x 12"
Part Weight Limit	50 kg	50 kg	25 kg	50 kg
Smallest 3D detail		≥ 5 mm^3		0.25 μm
X-ray Source	225 kV	140 kV		225 kV
X-ray Spot Size	3-225 μm			
X-ray Detector	127-200 μm	≥300 μm		100 μm
Delivery schedule	8 weeks	TBD	TBD	TBD
Price	$450K	TBD	TBD	TBD
Comment	Best ITC fit for physical dimensions and part size capability	Machine too large for ITC; Needs active room AC; Large Part Size/Area capability is benefit	Restricted to smallest sample size	Good – but prefer larger than 12"x12" sample size

2) Project Status (See Draper and CCAT attachments for details)

   a. At CCAT/ITC there are 3 active projects utilizing the GOM ATOS Structured Light Scanner. Engaged suppliers include Flanagan, GKN and New England Airfoil Products (NEAP). An active marketing campaign is underway to solicit additional suppliers to participate in Task 5. Satellite Tool & Machine Co has responded to this outreach and is scheduled for an ITC site tour on 1/13/17.

   b. At Draper there are 2 completed Task 5 projects (Deburring House and HABCO) and 2 projects in the process of being implemented (GKN and Jonal Laboratories).

   c. Two Draper projects may not be completed by the Task 5 end date in March. CAM Group has not completed the required NDA and Flanagan Industries has been acquired by EDAC requiring new supplier approvals. If these issues cannot be resolved by the end of January these projects will not be completed within the remaining period of performance at Draper.

   d. Two Draper suppliers (Admill and Avalon) are potential participants, but have not yet committed.

e. Polar Corporation has withdrawn from participation in Task 5 due to company priorities.

We can discuss these and other items at our scheduled 10:30 Conference call on Monday 1/16/17.

Regards,
Ken

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Cell Phone 203-584-8958

Note: Withheld pursuant to CGS § 1-210(b)(1)

2 - Pages

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Flanagan Industries	Kevin Flanagan, John Sabas	Scanning	Inspect ring	Implemented	CCAT	
GKN Aerospace	Martin Thorden	Scanning	Inspect inlet case	Implemented	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Scanning	Inspect airfoil prototype	Implemented	CCAT	
Satellite Tool & Manufacturing	Jack Lukasik - President	Scanning	Structured light scanning/reverse engineering Type of Assistance from CCAT	Investigating	CCAT	
Aero Gear, Inc.	Doug Rose	Scanning		Investigating	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Scanning		Investigating	CCAT	
Gros-ite (EDAC)	Ben Adams	Scanning		Investigating	CCAT	
Habco Industries	Brian Montanari President & CEO	Scanning		Investigating	CCAT	
Hubbell		Scanning		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Scanning		Investigating	CCAT	
Whitcraft, LLC	Colin Cooper, Nelson Gonzalez	Scanning		Investigating	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Suppl er Name	Supplier Point-of-Contact	Project Type	Project Descript on	Status	Project Lead	Fo low Up/Notes
Debu ng House Inc.	Stephen Cy - Qual ty Mg	Equ pment Recommendat on and Eng nee ng Se v ces	Recommendat on fo 3D Scann ng St uctu ed L ght) and 3D P nt ng (Desktop FDM). Measu ement System Analy s pe fo med at c t cal aspect on po nts.	Implemented	D ape	11/7 Du ng th s v s t 4 measu ement system analyses we e completed MSA equ ts we e p epa ed and subm tted to Debu ng House MSA equ ts nc luded recommendat ons fo t a n ng mp ovement Completed final report and submitted to DECD
GKN Ae ospace	Ma t n Tho den - P es dent,	P oces Imp ovement, Equ pment Recommendat on and Eng nee ng Se v ces	[redacted]	Implemented	D ape	[redacted]
Habco Indust es	B an Montana P es dent & CEO	P oces Imp ovement and Equ pment Recommendat on	[redacted]	Implemented	D ape	[redacted]
Jonal Labo ato es, Inc.	Ma c Nemeth - P es dent	P oces Imp ovement and Equ pment Recommendat on	[redacted]	Implemented	D ape	[redacted]
Adm ll Mach ne	Al Pa low	P oces Imp ovement	[redacted]	Invest gat ng	D ape	[redacted]
Avalon Advanced Technolog es & Repa Inc.	V no F anell n - P es dent, Jeff ey Kelly Qual ty Mg	P oces Imp ovement	[redacted]	Invest gat ng	D ape	[redacted]
CAM G oup LLC		Equ pment Recommendat on	[redacted]	Invest gat ng	D ape	[redacted]
Flanagan Indust es (EDAC)	DECD to def ne	Equ pment Recommendat on	[redacted]	Invest gat ng	D ape	[redacted]
Pola Co po at on	Andy Kowalsk - P es dent, Tyson Szewczyk - Qual ty Mg		[redacted]	W thd awn	D ape	[redacted]

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 01/29/2017 11:08:14 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: 1-27-17 RADE Task 5 Weekly Status
Attachments: Supplier Status CCAT 1-27-17.xlsx Supplier Status Draper 1-27-17.xlsx Justification for ITC Non-Destructive Inspection Equipment (Draft 1-26-17).docx

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Carmen,

1) Belcan and CCAT had discussions with Barnes Aerospace and Aerospace Alloys to describe ITC services and consider potential projects. This activity is ongoing. An additional 4 suppliers have been contacted and we are awaiting responses.

[redacted]

3) Anticipate submittal of a formal proposal from CCAT defining a strategic plan to sustain availability and operational support for the state owned equipment residing at CCAT/ITC for 3 years beyond the Task 5 contract end date in March of 2017.

4) Justification for the purchase of an x-ray scanner was reviewed with DECD. Additional information was requested by DECD to strengthen the proposal. Belcan and CCAT were tasked with providing additional detail on specific parts that suppliers propose as candidates for x-ray scanning, as well as background information for the x-ray machine manufacturers providing quotes.

Regards,
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Cell Phone 203-584-8958

Note: Withheld pursuant to CGS § 1-210(b)(1)
Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

3 - Pages

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Scanning	[redacted]	Implemented	CCAT	[redacted]
GKN Aerospace	Andreas Anderson, Martin Thorden	Scanning		Implemented	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Scanning		Implemented	CCAT	
EDAC	Glenn Lussier - VP Quality	Scanning		Implemented	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Scanning		Implemented	CCAT	
Phoenix Manufacturing	Brad Hodgdon, Rob Revere, Salvador Robustelli	Scanning		Implemented	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Scanning		Implemented	CCAT	
Satellite Tool & Manufacturing	Jack Lukasik - President	Scanning		Implemented	CCAT	
Aero Gear, Inc.	Doug Rose	Scanning		Investigating	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Scanning		Investigating	CCAT	
Gros-ite (EDAC)	Ben Adams	Scanning		Investigating	CCAT	
Habco Industries	Brian Montanari President & CEO	Scanning		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Scanning		Investigating	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Suppl er Name	Supplier Point-of-Contact	Project Type	Project Descript on	Status	Project Lead	Fo low Up/Notes
Debu ng House Inc.	Stephen Cy - Qual ty Mg	Equ pment Recommendat on and Eng nee ng Se v ces	[redacted]	Implemented	D ape	[redacted]
GKN Ae ospace	Ma t n Tho den - P es dent,	P ocess Imp ovement, Equ pment Recommendat on and Eng nee ng Se v ces	[redacted]	Implemented	D ape	[redacted]
Habco Indust es	B an Montana P es dent & CEO	P ocess Imp ovement and Equ pment Recommendat on	[redacted]	Implemented	D ape	[redacted]
Jonal Labo ato es, Inc.	Ma c Nemeth - P es dent	P ocess Imp ovement and Equ pment Recommendat on	[redacted]	Implemented	D ape	[redacted]
Adm ll Mach ne	Al Pa low	P ocess Imp ovement	[redacted]	Invest gat ng	D ape	[redacted]
Avalon Advanced Technolog es & Repa Inc.	V no F ant n - P es dent, Jeff ey Kelly Qual ty Mg	P ocess Imp ovement	[redacted]	Invest gat ng	D ape	[redacted]
CAM G oup LLC		Equ pment Recommendat on	[redacted]	Invest gat ng	D ape	[redacted]
Flanagan Indust es (EDAC)	DECD to def ne	Equ pment Recommendat on	[redacted]	Invest gat ng	D ape	[redacted]
Pola Co po at on	Andy Kowalsk - P es dent, Tyson Szewczyk - Qual ty Mg		[redacted]	W thd awn	D ape	[redacted]

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 02/03/2017 03:05:34 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: 2-3-17 RADE Task 5 Weekly Status
Attachments: CCAT ITC Equipment Proposal 020217.pdf Supplier Status CCAT 2-3-17.xlsx Supplier Status Draper 2-3-17.xlsx X-ray Supplier Details 2-1-17.xlsx

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Carmen,

[redacted]

3) Draper status is unchanged (See attached Draper status).

4) CCAT delivered a formal proposal to DECD defining a plan to sustain availability and operational support for the state owned equipment residing at CCAT/ITC beyond the Task 5 contract end date in March of 2017 (See attached proposal).

5) Contact information from Computed Tomography X-ray manufacturers was supplied to DECD along with brief descriptions of the manufacturers products, capability and history (See attached X-ray Supplier Details).

6) Eight of 12 suppliers responding to our surveys have part size requirements that can be met only by the NSI X5000 Computed Tomography (CT) x-ray scanner at 48 inches. Other manufacturers are limited to 17, 24 and 35 inches.

Supplier	Part Size (Inches)
[redacted]	

Regards,
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STATE OF CONNECTICUT

Innovation Technology Center
(ITC)

CONNECTICUT CENTER FOR ADVANCED TECHNOLOGY, INC.

Proposal for Program Funding & Administration

February 2, 2017

Introduction and Foreword:

The Connecticut Center for Advanced Technology, Inc. (CCAT) respectfully submits this Economic Development Grant Proposal which seeks support for the continuation of the OEA RADE equipment currently in the Innovation Technology Center (ITC). For the period beginning immediately after the expiration of the OEA RADE program, CCAT proposes to use the acquired equipment as part of our mission to serve manufacturers with a special focus on Pratt & Whitney's supply chain for the F-135 engine.

About CCAT:

CCAT is a non-stock, tax-exempt corporation incorporated on May 3, 2004, and is funded under federal and state sponsored grants. CCAT's mission is to address 21st century economic challenges by creating partnerships which collaboratively provide services and resources to industry, academia, government and non-profit organizations that help them implement innovative solutions, increase efficiencies and improve workforce development. To be acknowledged by our clients as the "go to" resource for improving America's competitiveness and as the best practices partner for organizations and businesses with a technology focus. We will deliver value-added programs efficiently and effectively, with a bold entrepreneurial spirit, and attract the best and brightest people to our collaborative culture and landmark facilities.

Program Background and Summary:

The ITC was created as part of the OEA RADE contract with the federal government. Its purpose is to introduce new manufacturing technology to manufacturers with a particular focus on Pratt & Whitney's F-135 supply chain in preparation for future production. This Center is located at CCAT's Advanced Manufacturing Center and, as of the writing of this proposal, housed a GOM Atos Blue Light scanner purchased under the OEA RADE program as cost share. A second piece of equipment is contemplated (CT X-ray Scanning) but has not been fully defined yet.

CCAT proposes any equipment bought under the OEA RADE program become part of CCAT's AMC by means of a no-cost transfer. This equipment will continue to be used to demonstrate advanced technologies to manufacturers with a particular focus on the F-135 supply base for the same purpose for which it was originally intended. The equipment will become part of a pool of advance technology used by CCAT. CCAT will fund labor and maintenance expense using current and future federal, state and industry funding as applicable and will not require any new funding from the DECD.

Administrative Qualifications & Justification

CCAT has been involved with manufacturing technology since the company's inception in 2004. Our Advanced Manufacturing Center (AMC) serves as a national resource for applied manufacturing technology and boasts some of the most modern manufacturing equipment currently available in the marketplace. With the rapidly expanding interest in additive manufacturing, CCAT has also added both metal and plastic 3D printing capability to its inventory of advanced manufacturing equipment. CCAT recently installed a Hybrid DMG machine and is in the process of installing a new CNC Portal Milling Machine from Zimmermann for composites. The latest High Rate Additive Manufacturing (HRAM) equipment is expected to be installed later this year.

Through site visits, surveys, and research CCAT continually seeks to understand the needs of small and medium-sized manufacturers (SMMs). CCAT's history of conducting technology workshops, providing manufacturing training and productivity assessments to small and medium sized manufacturers makes it uniquely qualified to manage the additional equipment from the OEA RADE program. Included among our staff are degreed engineers and machinists with decades of combined manufacturing experience. Many individuals on our staff have also worked in manufacturing environments and understand the many unique challenges faced by manufacturers.

CCAT believes our AMC would be the best, most cost effective use of the OEA RADE equipment. CCAT has the right facility, staff, and programs to continue to effectively use this equipment in the manner it was intended. Our staff has been fully trained to use this equipment and has experience on projects with manufacturers using it. DECD would incur significant cost to rig out and move this equipment to any other location as well as potentially damaging it during a move.

The GOM Atos has already proven valuable to the manufacturing supply chain as we have received projects/inquirers from; EDAC, Flanagan, GKN, Hubbell, NEAP Phoenix, Satellite Tool, Alpha Q, Polamer, Pratt & Whitney (P&W) and Vivax Medical companies. We have also had interest from the Air Force Research Laboratory (AFRL) for measurement of artifacts to prove out the technology.

Program Summary & Procedures

1. **Overall Objective**

   CCAT's primary objective will be to make the OEA RADE equipment available to the manufacturing supply chain with a special emphasis on P&W's F-135 suppliers. CCAT will use funding from the various federal and state programs to fund this effort as well as appropriate cost share from manufacturers. We will follow whichever procedures are required by the funding source.

   CCAT will keep the equipment in good working order for the extent of its useful life, estimated to be approximately seven years. This equipment will become part of CCAT's fixed assets which are audited annually by an independent audit firm, a copy of which is supplied to the State of Connecticut each year.

2. **Management**

   The management of this equipment will be part of CCAT's AMC Directors' duties and responsibilities. He/she will be responsible for maintaining the equipment and for carrying out the objective of making it available to manufacturers and the F-135 supply chain.

3. **Reporting**

   At DECD's request, CCAT will provide a yearly summary of projects which used the OEA RADE equipment for the duration of its useful life. This summary would include:

   a.) Project description
   b.) Company
   c.) Funding source
   d.) Impact/outcome

4. **Scope of Services**

   Not applicable

5. **Budget Narrative**

   No further funds are requested after the completion of the OEA RADE program.

6. **Payment Schedule**

   Not applicable

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)		Complete	CCAT	
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)		Implemented	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)		Implemented	CCAT	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)		Implemented	CCAT	
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)		Implemented	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)		Implemented	CCAT	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)		Implemented	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)		Implemented	CCAT	
Phoenix Manufacturing	Brad Hodgdon, Rob Revere, Salvador Robustelli	Structured Light Scanning (SLS)		Implemented	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)		Investigating	CCAT	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)		Not interested	CCAT	
Barnes Manufacturing	Brady Kattman - Quality Mgr	Structured Light Scanning (SLS)		Not interested	CCAT	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT	

Suppl er Name	Supplier Point-of-Contact	Project Type	Project Descript on	Status	Project Lead	Fo low Up/Notes
Debu ng House Inc.	Stephen Cy - Qual ty Mg	Equ pment Recommendat on and Eng nee ng Se v ces	[redacted]	Completed	D ape	[redacted]
GKN Ae ospace	Ma t n Tho den - P es dent,	P oces Imp ovement, Equ pment Recommendat on and Eng nee ng Se v ces	[redacted]	Implemented	D ape	[redacted]
Habco Indust es	B an Montana P es dent & CEO	P oces Imp ovement and Equ pment Recommendat on	[redacted]	Completed	D ape	[redacted]
onal Labo ato es, Inc.	Ma c Nemeth - P es dent	P oces Imp ovement and Equ pment Recommendat on	[redacted]	Implemented	D ape	[redacted]
Adm ll Mach ne	Al Pa low	P oces Imp ovement	[redacted]	Invest gat ng	D ape	[redacted]
Avalon Advanced Technolog es & Repa Inc.	V no F ant n - P es dent, Jeff ey Kelly Qual ty Mg	P oces Imp ovement	[redacted]	Invest gat ng	D ape	[redacted]
CAM G oup LLC		Equ pment Recommendat on	[redacted]	Invest gat ng	D ape	[redacted]
Flanagan Indust es (EDAC)	DECD to def ne	Equ pment Recommendat on	[redacted]	Invest gat ng	D ape	[redacted]
Pela Co po at on	Andy Kowalsk - P es dent, Tyson Szewczyk - Qual ty Mg		[redacted]	W thd awn	D ape	[redacted]

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Jason Dimon
North East Technical Sales Manager | North Star Imaging
19875 S. Diamond Lake Rd.
Rogers, MN 55374
Phone#: 763-200-3432
f. 763-463-5651| jdimon@4nsi.com | www.4nsi.com

The X5000 is a multi-axis high-resolution digital x-ray system for digital radiography and computed tomography inspection of small to large objects with a large format detector. The 5000 Series has innovative cabinet and manipulator designs for easy part loading of even the largest of objects.
The system can accommodate a variety of part shapes, sizes and weights. The steel/lead/steel cabinet has a fit and finish that is unparalleled in the industry and the machine tool technology used in the motion control system ensures a long trouble free life. All systems are manufactured to meet all state and federal radiation safety regulations.

COMPANY PROFILE
North Star Imaging (NSI) manufactures, sells and services state-of-the-art X-ray Imaging systems and CT equipment for industrial use. Our company also designs and develops the software applications used in our systems. NSI provides system solutions from low production or R&D, to high resolution/high production/high energy. Our standard range of products is extremely flexible to meet varied customer requirements
NSI began in the field of industrial X-ray Imaging in 1986 in Minnesota. The Company built its first Digital Radiography system in 1991 and first Computed Tomography system in 2002. From 2006, NSI widened its services and added an Inspection Services Group (ISG) offering need based consulting for anyone needing X-ray and/or computed tomography scanning. Aside from the ISG services, the company also has a Technical Service & Support team that is on call 24/7 to address immediate global customer service needs.
The corporate office is located in the city of Rogers, just outside Minneapolis, Minnesota. In 2010, the company was acquired by ITW which is a global company with 51,000 employees across 56 countries. Since then NSI has opened offices in Paris, France, Irvine, CA, High Wycombe, UK, and Suzhou, China. Worldwide NSI has approximately 100 skilled employees including application specialists, mechanical engineers, software engineers, programmers, level 3 instructors and others.
The global demand for cutting edge X-ray and CT equipment that provides advanced capabilities in an easy and intuitive user interface is what constantly pushes NSI to raise the bar with new and innovative products. The company has the widest product portfolio in the industry which keeps NSI way ahead of its competition. NSI offers seven (7) standard X-ray and CT/micro CT systems including the newly launched CXMM 50, an X-ray system designed specifically for 3D Metrology.
NSI is an ISO 9001 2008 certified company

Nikon Metrology, Inc. (Main office US) Office

Ken Gribble
12701 Grand River Avenue
Brighton, MI 48116
United States

Email sales.nm-us@nikon.com
Website http //www.nikonmetrology.com
Telephone Number: (810) 220-4360
Fax Number: (810) 220-4300

X-ray and CT Inspection for industrial and electronic applications

Nikon Metrology manufactures X-ray and Computed Tomography (CT) inspection systems that get the inside picture of complex industrial parts, by looking into the internal structure. The CT capability is used to qualify and quantify any inner or outer dimension in a smooth, non-destructive process. X-ray electronics inspection systems respond to a growing demand for flexible, detailed and affordable inspection to cope with the demands of ever-smaller electrical components and comply with tighter quality standards.

GE Inspection Technologies

Jim Bednar
Key Account Sales Manager – Radiography
GE Inspection Technologies

M (216) 218-9611
E jim.bednar@ge.com

GE imagination at work
www.ge-mcs.com

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phoenix|x-ray
Niels-Bohr-Str. 7
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Tel. +49 5031 172 0
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E-mail phoenix-info@ge.com
GE Inspection Technologies, LP
50 Industrial Park Rd
Lewistown, PA 17044, USA
Tel. 717 242 03 27
Fax 717-242-2606
E-mail phoenix-usa@ge.com

phoenix v|tome|x m
High-end tool for 3D industrial and scientific analysis tasks
Within the phoenix v|tome|x m, GE's unique 300 kV microfocus X-ray tube is for the first time available in a compact CT system for industrial process control as well as for scientific research applications. Beyond down to < 1 µm detail detectability, the system offers industry leading magnification and power at 300 kV.
GE's high dynamic DXR digital detector array and the click & measure|CT automatization functionality make it an efficient 3D tool for industrial inspection and scientific research. Due to its dual|tube configuration, detailed 3D information for an extremely wide sample range is provided from high resolution nanoCT® of low absorbing samples up to high power µCT applications such as turbine blade inspection.
Reproducible precision 3D metrology with CT
3D metrology of internal features of a valve block made of high grade aircraft aluminum
Beyond high-resolution 3D analysis in R&D and failure analysis labs, the phoenix v|tome|x m allows even 3D production control due to its powerful 300 kV tube and high dynamic detector technology for fast CT acquisition, fast velo|CT volume reconstruction and its high automation grade. Applications are, e.g., in light metal casting, electronics assembly, plastics molding as well as in turbine blade inspection
• Internal defect analysis / 3D quantitative porosity analysis
• Assembly control
• Materials structure analysis
Industrial non-destructive 3D testing

ProCon

Joachim Gudat

ProCon X-Ray GmbH
Ludwig-Erhard-Ring 6A
D-31157 Sarstedt
Tel +49 5066 98414 0
Fax +49 5066 98414 99
www.procon-x-ray.de
Joachim.Gudat@procon-x-ray.de

Exact Metrology has partnered with ProCon X-Ray GmbH, a premier German developer of x-ray inspection equipment for industrial applications and university/scientific research, and we are officially its sole representative and seller in the United States.
With high resolution focus x-ray technology these systems deliver uncompromised image quality and are widely used for nondestructive testing, failure analysis and process control.
CT-ALPHA
This system meets the most stringent demands in CT X-ray. With the CT-ALPHA, we offer the highest possible flexibility for individual customer requirements.
This space-saving system can be equipped with different X-ray powers, from 160kV for nanometer resolution through 225 kV, 320 Watts to the highest power of 300 kV, 320 Watts.
The variable focus-detector distance permits maximum contrast. As an option, the CT-ALPHA offers the Helix-Scan technique for longer objects as well as for the best avoidance of volume CT artifacts for optimum results in dimensional measurement.
Very large geometric magnifications permit real-time reconstructions in the submicron range. The CT-ALPHA system is ideal for non-destructive testing, materials investigations and, in particular, dimensional measurements of internal structures, undercuts and free form surfaces.

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 02/12/2017 09:19:01 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: 2-10-17 RADE Task 5 Weekly Status
Attachments: CCAT ITC Sustainment and Equipment Proposal 021017.pdf Supplier Status CCAT 2-10-17.xlsx Supplier Status Draper 2-10-17.xlsx

Carmen,

1) With guidance from Belcan CCAT prepared a revised ITC Sustainment Proposal including cost and floorspace details (See attachment).

[redacted]

3) No new projects have been added at CCAT or Draper. Progress on existing projects continues. Priorities have been established for the backlog at the ITC (See attachments).
4) David Hamzik has replaced Steve Holmes as the project manager at Draper. I have requested a comprehensive review of the Draper projects and their expected completion dates.
5) Belcan delivered the monthly progress report for January to DECD.

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

STATE OF CONNECTICUT

Innovation Technology Center
(ITC)

CONNECTICUT CENTER FOR ADVANCED TECHNOLOGY, INC.

Proposal for Program Funding & Administration

February 10, 2017

Introduction and Foreword:

The Connecticut Center for Advanced Technology, Inc. (CCAT) respectfully submits this Economic Development Grant Proposal which seeks support for the continuation of the OEA RADE equipment currently in the Innovation Technology Center (ITC). For the period beginning immediately after the expiration of the OEA RADE program, CCAT proposes to use the acquired equipment as part of our mission to serve manufacturers with a special focus on Pratt & Whitney's supply chain for the F-135 engine.

About CCAT:

CCAT is a non-stock, tax-exempt corporation incorporated on May 3, 2004, and is funded under federal and state sponsored grants. CCAT's mission is to address 21st century economic challenges by creating partnerships which collaboratively provide services and resources to industry, academia, government and non-profit organizations that help them implement innovative solutions, increase efficiencies and improve workforce development. To be acknowledged by our clients as the "go to" resource for improving America's competitiveness and as the best practices partner for organizations and businesses with a technology focus. We will deliver value-added programs efficiently and effectively, with a bold entrepreneurial spirit, and attract the best and brightest people to our collaborative culture and landmark facilities.

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The ITC was created as part of the OEA RADE contract with the federal government. Its purpose is to introduce new manufacturing technology to manufacturers with a particular focus on Pratt & Whitney's F-135 supply chain in preparation for future production. This Center is located at CCAT's Advanced Manufacturing Center and, as of the writing of this proposal, housed a GOM Atos Blue Light scanner purchased under the OEA RADE program as cost share. A second piece of equipment is contemplated (CT X-ray Scanning) but has not been fully defined yet.

CCAT proposes any equipment bought under the OEA RADE program become part of CCAT's AMC by means of a no-cost transfer. This equipment will continue to be used to demonstrate advanced technologies to manufacturers with a particular focus on the F-135 supply base for the same purpose for which it was originally intended. The equipment will become part of a pool of advance technology used by CCAT. CCAT will fund labor and maintenance expense using current and future federal, state and industry funding as applicable and will not require any new funding from the DECD.

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CCAT has been involved with manufacturing technology since the company's inception in 2004. Our Advanced Manufacturing Center (AMC) serves as a national resource for applied manufacturing technology and boasts some of the most modern manufacturing equipment currently available in the marketplace. With the rapidly expanding interest in additive manufacturing, CCAT has also added both metal and plastic 3D printing capability to its inventory of advanced manufacturing equipment. CCAT recently installed a Hybrid DMG machine and is in the process of installing a new CNC Portal Milling Machine from Zimmermann for composites. The latest High Rate Additive Manufacturing (HRAM) equipment is expected to be installed later this year.

Through site visits, surveys, and research CCAT continually seeks to understand the needs of small and medium-sized manufacturers (SMMs). CCAT's history of conducting technology workshops, providing manufacturing training and productivity assessments to small and medium sized manufacturers makes it uniquely qualified to manage the additional equipment from the OEA RADE program. Included among our staff are degreed engineers and machinists with decades of combined manufacturing experience. Many individuals on our staff have also worked in manufacturing environments and understand the many unique challenges faced by manufacturers.

CCAT believes our AMC would be the best, most cost effective use of the OEA RADE equipment. CCAT has the right facility, staff, and programs to continue to effectively use this equipment in the manner it was intended. Our staff has been fully trained to use this equipment and has experience on projects with manufacturers using it. DECD would incur significant cost to rig out and move this equipment to any other location as well as potentially damaging it during a move.

The GOM Atos has already proven valuable to the manufacturing supply chain as we have received projects/inquirers from; EDAC, Flanagan, GKN, Hubbell, NEAP Phoenix, Satellite Tool, Alpha Q, Polamer, Pratt & Whitney (P&W) and Vivax Medical companies. We have also had interest from the Air Force Research Laboratory (AFRL) for measurement of artifacts to prove out the technology.

Program Summary & Procedures

1. **Overall Objective**

   CCAT's primary objective will be to make the OEA RADE equipment available to the manufacturing supply chain with a special emphasis on P&W's F-135 suppliers. CCAT will use funding from the various federal and state programs to fund this effort as well as appropriate cost share from manufacturers. We will follow whichever procedures are required by the funding source.

   CCAT will keep the equipment in good working order for the extent of its useful life, estimated to be approximately seven years. This equipment will become part of CCAT's fixed assets which are audited annually by an independent audit firm, a copy of which is supplied to the State of Connecticut each year.

2. **Management**

   The management of this equipment will be part of CCAT's AMC Directors' duties and responsibilities. He/she will be responsible for maintaining the equipment and for carrying out the objective of making it available to manufacturers and the F-135 supply chain.

3. **Reporting**

   At DECD's request, CCAT will provide a yearly summary of projects which used the OEA RADE equipment for the duration of its useful life. This summary would include:

   a.) Project description
   b.) Company
   c.) Funding source
   d.) Impact/outcome

4. **Scope of Services**

   Not applicable

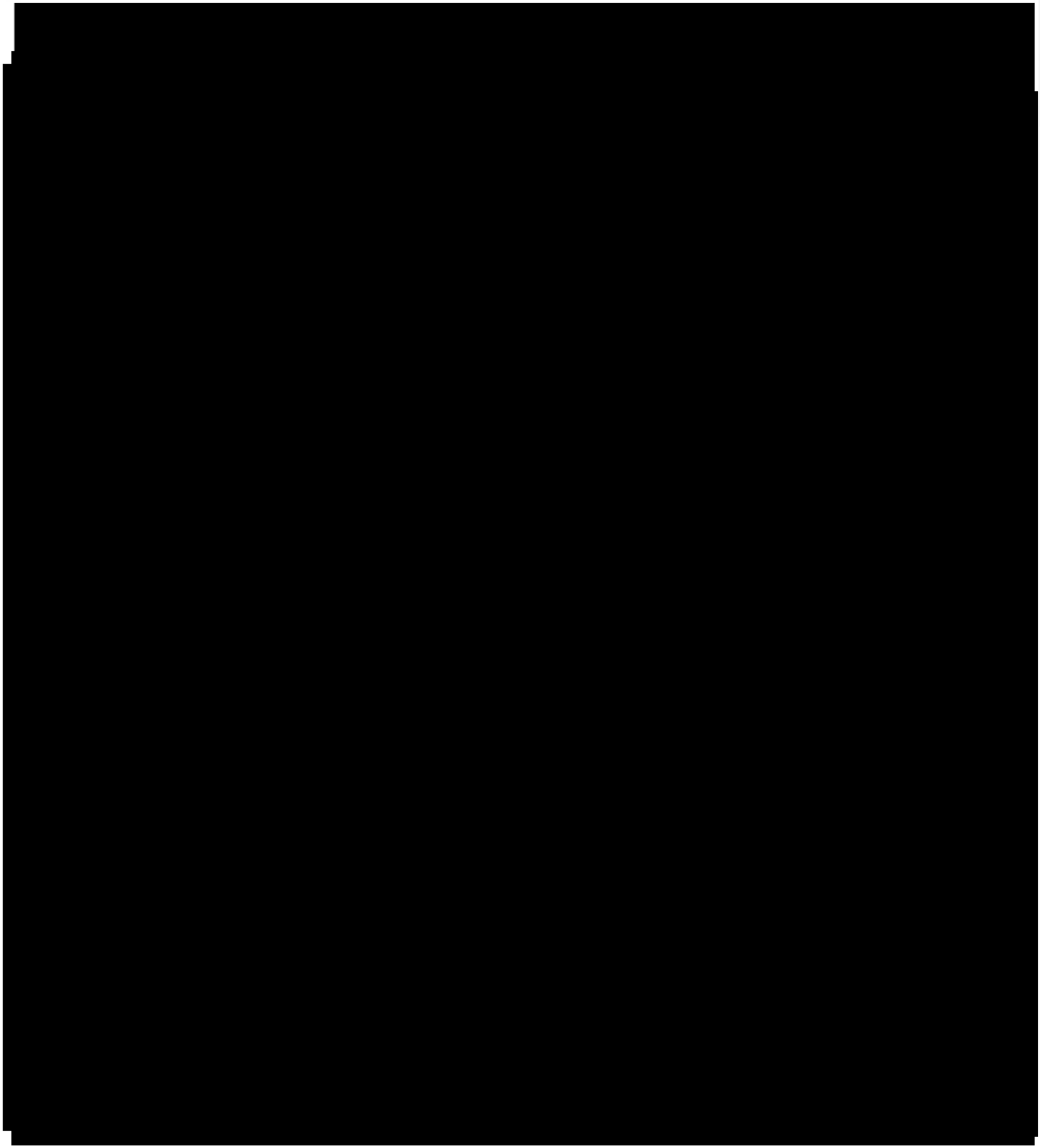
5. **Budget Narrative**

   No further funds are requested after the completion of the OEA RADE program. Attachment #1 estimates future funding sources to sustain the equipment.

6. **Payment Schedule**

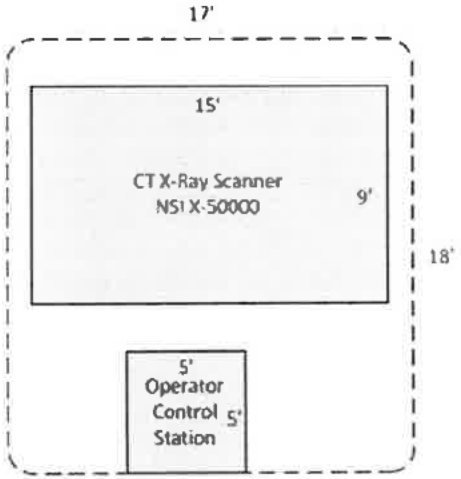
   Not applicable

Note: Withheld pursuant to CGS § 1-210(b)(5) and CGS § 32-244(a)(13)

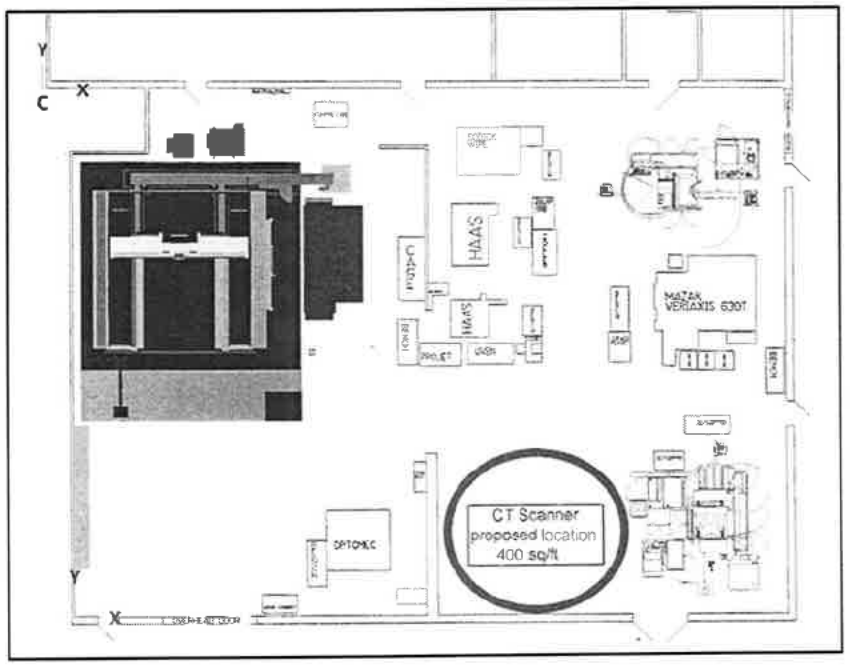


CT X-RAY SCANNER
NSI X5000
PLANNING DOCUMENT

- Rigging cost – assumes 15,000 pounds, delivered in crate, requiring assembly (3rd party) = $3,000
- Electrical hookup – assumes 208 voltage installed by 3rd party = $2,000
- Required Space = 306 ft2 per documents provided by NSI see sketch A below
- Available Space on AMC main floor = 400 ft2 located per sketch B below



Sketch A
Required space = 306 ft^2



Sketch B
Available space = 400 ft2

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]	Complete	CCAT	[redacted]
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)		Implemented	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)		Implemented	CCAT	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)		Implemented	CCAT	
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)		Implemented	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)		Implemented	CCAT	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)		Implemented	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)		Implemented	CCAT	
Phoenix Manufacturing	Brad Hodgdon, Rob Revere, Salvador Robustelli	Structured Light Scanning (SLS)		Implemented	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)		Investigating	CCAT	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)		Not interested	CCAT	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Debu ng House Inc.	Stephen Cy - Quality Mg	Equipment Recommendation and Engineering Services	[redacted]	Completed	D ape	[redacted]
GKN Aerospace	Matt Thurden - President,	Process Improvement, Equipment Recommendation and Engineering Services	[redacted]	Implemented	D ape	[redacted]
Habco Industries	Brian Montana President & CEO	Process Improvement and Equipment Recommendation	[redacted]	Completed	D ape	[redacted]
Jonal Laboratories, Inc.	Marc Nemeth - President	Process Improvement and Equipment Recommendation	[redacted]	Implemented	D ape	[redacted]
Admiral Machine	Al Pavlow	Process Improvement	[redacted]	Investigating	D ape	[redacted]
Avalon Advanced Technologies & Repair Inc.	Vince Fantini - President, Jeff Kelly Quality Mg	Process Improvement	[redacted]	Investigating	D ape	[redacted]
CAM Group LLC		Equipment Recommendation	[redacted]	Investigating	D ape	[redacted]
Flanagan Industries (EDAC)	DECD to define	Equipment Recommendation	[redacted]	Investigating	D ape	[redacted]
Polaris Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mg		[redacted]	Withdrawn	D ape	[redacted]

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 02/17/2017 03:25:12 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: 2-17-17 RADE Task 5 Weekly Status
Attachments: ITC Sustainment beyond Task 5

Carmen,

1) With guidance from Belcan CCAT delivered additional details to DECD specifying anticipated federal, state and other funding sources that may contribute to sustainment of ITC equipment at CCAT when and if Task 5 is discontinued (See attachment).

2) The ITC is currently working on 5 suppliers projects. NDA's are being processed for 6 additional supplier projects. Three suppliers have decided not to participate after assessing applicability of the GOM ATOS to their processes.
3) To date Draper is actively working 11 projects with 4 suppliers with 1 additional project submitted to DECD for approval.
   Deburring House – Closed; additional project submitted to DECD for approval (will resend to DECD)
   Habco – Closed; 3 projects complete
   GKN – 3 projects in progress / 0 projects complete / 3 Total
   Jonal – 3 projects in progress / 1 project complete / 4 Total

   Additional work is required with Flanagan, Admill and Avalon to initiate projects.
   Flanagan - Currently working with Flanagan to determine best approach forward, including whether new NDA's need to be signed through EDAC.
   Admill & Avalon – Following Draper's attempt to confirm, pending verification from DECD on confirmation of interest; Draper has not received any further confirmation.
   CAM and Polar will not be participating.
   CAM - Did not wish to sign the letter of intent or NDA; updating to status to withdrawn or inactive.
   Polar –Withdrawn and stated they do not wish to participate.
4) Belcan has been advised by North Star Imaging that the Computed Tomography X-ray scanning equipment for ITC can be delivered by 3/31/17 if the order is placed by 2/24/17. If the order is placed beyond this date a delay in installation will result.

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Knight, Crystal

From: Devins, Kenneth <kdevins@belcan.com>
Sent: Thursday, February 16, 2017 4:51 PM
To: Molina-Rios, Carmen
Cc: John Glidden
Subject: ITC Sustainment beyond Task 5

Carmen,

John provided me with the CCAT rationale for forecasting ITC sustainability costs. I have summarized it below. If additional information is required, please let me know when you are available for a conference call with John and I.



As far as the rigging and installation for the CT X-ray machine, CCAT has that cost covered in the ITC budget assuming it is nothing out of the ordinary. CCAT put the budget together before it was known which pieces of equipment were going to be purchased so the estimate was based on what was known at that time. However, if the equipment comes in after the contract ends, CCAT will need to find a different way to cover it. It is possible to negotiate rigging and installation as part of the purchase and this would be recommended. Training can also be negotiated as part of the purchase. Sometimes the manufacturer will throw it in as an incentive.

Thanks,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	02/27/2017 10:55:44 AM
To:	Molina-Rios, Carmen
Cc:	Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	2-24-17 RADE Task 5 Weekly Status
Attachments:	Connecticut RADE_Task 5 Site Visit Agenda 022417.docx ITC ITC Marketing Flyer E.docx

Carmen,

1) Belcan, CCAT and Draper participated in a technical review of Task 5 with representatives of the Center for Regional Economic Competitiveness (CREC).

The agenda is attached.
The CCAT demonstration included participation of Satellite Tool & Machine president Jack Lukasik and representatives from Belcan, CCAT and CREC.
After the demonstration the CREC representatives were given a tour of the CCAT facility. The CCAT portion of the agenda was completed with a conference call with Andreas Andersson from GKN that allowed CREC to gain additional perspective on the process by which the Blue Light technology was being shared and the benefits accrued to this supplier.
The Belcan and CREC representatives then travelled to East Berlin to walk the production process at Deburring House. Representatives of Draper had arranged a tour of the facility with Steve Cyr, Quality manager. The tour included the review of a variety of parts including F135 fan rotors and a lengthy discussion of the benefits provided to the supplier. As a result of Drapers process review the supplier has purchased a Blue Light scanner and 3D printer for inclusion into their production process.

2) A summary of active CCAT projects was provided to CREC for reference (See attachment).
3) Draper projects with supplier participation were reviewed with CREC. To date Draper is actively working 11 projects with 4 suppliers with 1 additional project submitted to DECD for approval.
   Deburring House – Closed; additional project submitted to DECD for approval
   Habco – Closed; 3 projects complete
   GKN – 3 projects in progress / 0 projects complete / 3 Total
   Jonal – 3 projects in progress / 1 project complete / 4 Total

   Additional work is required with Flanagan, Admill and Avalon to initiate projects.
   Flanagan - Currently working with Flanagan to determine best approach forward, including whether new NDA's need to be signed through EDAC.
   Admill & Avalon – Following Draper's attempt to confirm, pending verification from DECD on confirmation of interest; Draper has not received any further confirmation.

   CAM and Polar will not be participating.
   CAM - Did not wish to sign the letter of intent or NDA; updating to status to withdrawn or inactive.
   Polar –Withdrawn and stated they do not wish to participate.
4) CREC requested and received a copy of the marketing letter that Belcan and CCAT used in soliciting supplier participation in Task 5 (See attachment).

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Knight, Crystal

From: Wayne Sumple <wsumple@ccat.us>
Sent: Monday, February 27, 2017 10:19 AM
To: Devins, Kenneth
Subject: ITC

PRGM	COMPANY	PROJECT TYPE	PROP #	PHASE	PROJECT DESCRIPTION	STATUS	PROJECT LEAD	PROJ END DATE	SURVEY Sent	SUR Re
ITC	Hubbell	scanning				investigating	Wayne			
ITC	CT Tool	scanning				investigating	Wayne			
ITC	Satelite Tool	scanning				investigating	Wayne			
ITC	Polamer	scanning				investigating	Nasir			
ITC	Alpha Q	scanning				investigating	Nasir			
ITC	EDAC	scanning				investigating	Wayne			
ITC	Aerospace Alloys	scanning				investigating	Wayne			
ITC	Phoenix Manufacturing	scanning	1730			in-progress	Don			
ITC	AFRL	scanning				in-progress	Nasir	26-Jan		
ITC	NEAP	scanning				in-progress	Nasir			
ITC	Flanagan	scanning				in-progress	Nasir			
ITC	GKN Newington	scanning	1618			complete	Nasir	23-Jan		
ITC	Barnes Aerospace	scanning				cancelled	Wayne			

Wayne M. Sumple

Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

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Connecticut RADE – Task 5 Site Visit

CREC – February 24, 2017

8:00 – 9:30 am CCAT Advanced Manufacturing Center

Contact: Don Balducci, CCAT
Address: 409 Silver Lane City East Hartford, CT 06118
Phone: 860 282-4942
Email: dbalducci@ccat.us
- See OEA grant purchased Blue Light Inspection Machine

10:30 – noon DRAPER Company Visit: Deburring House

Contact: Bryan Wittstein, Draper Laboratories
Company Address: 230 Berlin Street, East Berlin, CT 06023
Phone: 617-258-1519
Email: bwittstein@draper.com
- Deburring's capabilities include a wide range of edge and surface conditioning processes to meet the varied needs of the precision machining industry.

Noon - 1:30 pm Lunch w/ Draper & Belcan Engineering

Contact: Ken Devins, Belcan Engineering
Address: TBD
Phone: 203-584-8958
Email: kdevins@belcan.com

2:30 - 4:30 pm Wrap-Up Session (DECD, CCAT, Belcan, Draper)

Contact: Sue Palisano, CCAT
Address: 222 Pitkin Street, East Hartford CT 06108
Phone: 860-282-4224
Email: spalisano@ccat.us
- Phone calls with companies using Task 5 equipment; other issues

Contact: Carmen Molina-Rios, DECD
Phone: 203.886.8353
Email: Carmen.molinarios@ct.gov

To Airport

Center for Regional Economic Competitiveness (CREC) Staff

Marty Romitti, Ph.D. CREC
mromitti@crec.net
cell: 573.808.1536

Randall Arthur, CREC
rarthur@crec.net
cell: 908.477.9471

Charlie Braunlich, CREC
cbraunlich@crec.net
cell: 517.410.4941

Innovation Technology Center (ITC)

The State of Connecticut is looking for Connecticut defense manufacturers who want to evaluate if Structured Light Scanning (SLS) technology works for them. CT manufacturers can have a Demonstration Project performed at the newly constructed ITC. The ITC is sponsored by the Department of Defense Office of Economic Adjustment and the Connecticut Department of Economic and Community Development. The ITC is 1000 ft^2 of lab space managed by the Connecticut Center for Advanced Technology Inc. (CCAT) in East Hartford. There is no cost to participate.

WHAT IS A DEMONSTRATION PROJECT?

A demonstration project will allow CT manufacturers to evaluate structured light scanning technology against technologies (CMM or manual inspections) they are currently using. This will be done by using new technology on real parts and comparing results to what suppliers currently are achieving. A Structured Light Scanning Demonstration Project will allow suppliers to have one of their own manufactured parts scanned using the structured, blue light scanner available at the ITC:

- The GOM ATOS Scanbox 5108 is an optical 3D measuring machine developed for quality control in larger production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. (GOM Website)

CCAT personnel will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so that results from the new technology can be compared directly to results from the current technology being used by the supplier.

WHY DO AN SLS DEMONSTRATION PROJECT AT THE ITC?

- Mechanical measuring machines capture data in a point-based or linear manner while optical 3D coordinate measuring systems provide full-field deviations of 3D actual coordinates and CAD data
- The GOM ATOS machine is one example of optical scanning technology
- Compare new technology capabilities to current technology capabilities
- Evaluate impact on effectiveness, efficiency and productivity of new technology
- A Demonstration Project is FREE to CT defense manufacturers

A Non-Disclosure Agreement (NDA) can be executed to protect the manufacturer's process knowledge. CCAT is an ITAR controlled facility.

HOW DO I APPLY?

Complete the simple on-line application by going to the ITC Assistance Application and checking the box for "Structured light scanning/reverse engineering", or contact Mr. Wayne Sumple at CCAT or Mr. Ken Devins at Belcan.

Wayne Sumple
CCAT's Advanced Manufacturing Center
409 Silver Lane
East Hartford, CT. 06118
wsumple@ccat.us
860-282-4222

Ken Devins
Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
kdevins@belcan.com
860-683-5367

DEMONSTRATION PROJECT PROCESS

1. CT manufacturer to sign Non-Disclosure Agreement (NDA)
2. CT manufacturer to sign Export Control Intake Certification (ECIC)
3. CT manufacturer to complete Assistance Application for Structured Light Scanning
    a. Describe part(s) to be scanned
        i. Name of part
        ii. # of parts
        iii. Special handling instructions
    b. STRUCTURED LIGHT SCANNING (SLS)
        i. Identify data to be gathered during SLS demonstration project
            1. Time to process
            2. Cost to process - material consumed during process
            3. Metrology criteria – list of specific measurements or dimensional values required for evaluation of SLS
            4. Comparison of new measurements or dimensional values generated with SLS in the ITC to existing data taken by the SME at their facility
            5. Shipping/receiving instructions
    c. Provide format for report data
    d. Identify how part(s) will be delivered to/from ITC
        i. Supplier to hand carry to ITC
        ii. Supplier to ship to ITC

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

From: Devins, Kenneth <kdevins@belcan com>
Sent time: 03/06/2017 09:09:29 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M <jforsyth@belcan com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer Vesce@pw utc com>
Subject: 3-3-17 RADE Task 5 Weekly Status

Carmen,

1) To date the GOM ATOS has accumulated 550 hours on activities including informal demonstrations to visitors touring AMC, formal demonstrations to 13 companies. 4 active project and one complete project. In addition CCAT staff spent 630 hours learning how to operate GOM ATOS scanner. The activities included preparing space at the AMC for the ITC, managing the delivery and installment of the GOM ATOS, formal training provided by 3D Systems and informal training and practice on operation of hardware and software.

2) As summary of GOM ATOS projects at the CCAT/ITC is listed below:

PRGM	COMPANY	PROJECT TYPE	PROP #	PHASE	PROJECT DESCRIPTION	STATUS	PROJECT LEAD	PROJ END DATE	SURVEY Sent	SURVEY Rec'd
ITC	Hubbell	scanning				investigating	Wayne			
ITC	CT Tool	scanning				investigating	Wayne			
ITC	Satellite Tool	scanning				investigating	Wayne			
ITC	Polamer	scanning				investigating	Nasir			
ITC	Alpha Q	scanning				investigating	Nasir			
ITC	EDAC	scanning				investigating	Wayne			
ITC	Aerospace Alloys	scanning				investigating	Wayne			
ITC	Phoenix Manufacturing	scanning	1730			in-progress	Don			
ITC	AFRL	scanning				in-progress	Nasir	26-Jan		
ITC	NEAP	scanning				in-progress	Nasir			
ITC	Flanagan	scanning				in-progress	Nasir			
ITC	GKN Newington	scanning	1618			complete	Nasir	23-Jan		
ITC	Barnes Aerospace	scanning				cancelled	Wayne			

3) Draper projects with supplier participation are listed below. To date Draper is actively working 11 projects with 4 suppliers with 1 additional project submitted to DECD for approval.
   Deburring House – Closed; additional project submitted to DECD for approval. Deburring House purchased a David SLS-3 3D scanning system which will be used with the GOM Inspect software. The 3D printing system that was purchased was the MakerGear M2.
   Habco – Closed; 3 projects complete
   GKN – 3 projects in progress / 0 projects complete / 3 Total
   Jonal – 3 projects in progress / 1 project complete / 4 Total
   Additional work is required with Flanagan, Admill and Avalon to initiate projects.
   Flanagan - Currently working with Flanagan to determine best approach forward, including whether new NDA's need to be signed through EDAC.
   Admill & Avalon – Following Draper's attempt to confirm, pending verification from DECD on confirmation of interest; Draper has not received any further confirmation.
   CAM and Polar will not be participating.
   CAM - Did not wish to sign the letter of intent or NDA; updating to status to withdrawn or inactive.
   Polar –Withdrawn and stated they do not wish to participate.

Regards,
Ken

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175 Addison Rd.
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From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 03/20/2017 11:17:25 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: 3-17-17 RADE Task 5 Weekly Status
Attachments: DECD RADE 5 Status 030717.xlsx Supplier Status Draper 3-10-17 (Draper Update).xlsx Supplier Status CCAT 3-17-17.xlsx

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Carmen,

The extension of the Task 5 contract thru 9/30/17 will enable Draper, Belcan and CCAT to solicit additional supplier participation in CCAT/ITC Blue Light projects. An opportunity to introduce the ITC to a large supplier meeting will be at the Advanced Manufacturing Employer Partnership (AMEP) on March 30th.

CREC requested and received a status of Task 5 contract deliverables from Belcan (See attachment).

Belcan has prepared updates for Draper and CCAT/ITC progress with supplier projects (See attachments).

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Task 5 – Manufacturing Innovation

Inc ease CT Compan es cost compet t veness th ough spec al zed p ocess nnovat ons and technolog es that w ll add ess p o t zed a eas of nte est to the CT supply cha n to leve age key defense wo k and ass st n meet ng mmed ate demand fo the amp-up n ae ospace p oduct on.

S T		
5.1 H e techn cal coo d nato	Complete 11/15/16	Belcan
5.2 Acqu e and/o lease mach ne y, equ pment	Complete 11/15/16	CCAT
5.3 Installat on of mach ne y and equ pment	Complete 11/15/16	CCAT
5.4 Pe fo m out each to supply cha n	In t al su vey 1/31/16, follow-up ongo ng	DECD / Belcan
5.5 Ident fy t a n ng needs	GOM ATOS Complete 11/15/16	CCAT
5.6 Del ve t a n ng (f/when app op ate)	Complete 12/7/16	CCAT
5.7 P ocess Imp ovement p oject mplementat on	TBD	D ape
5.8 Analyze/ epo t on manufactu ng nnovat on	TBD	Belcan /CCAT /D ape
Del ve able		
• CT Innovat on Technology Cente s establ shed, ope at onal, and staffe	Complete 12/15/16	CCAT
• Suppl e s a e awa e of ITC and ts capab l t es	In t al su vey 1/31/16, follow-up ongo ng	DECD / Belcan
• Pa t c pat ng compan es staff t a ned on new p ocesses and technolog	1/11/2017	D ape / CCAT
• Repo t ng on the effect veness and best p act ces of manufactu ng nnovat on methodolog es & technolog es at pa t c pat ng compan es	Ongo ng	Belcan /CCAT /D ape
• Manufactu ng Technology Innovat on Needs Statement	TBD	Belcan /CCAT /D ape
Met cs		
• A m n mum of 20 supply cha n compan es pa t c pate	18	D ape - 7, CCAT - 5
• A m n mum of 10 p ojects mplemented	6	D ape / CCAT
• Ava lable hou s used on the equ pment by suppl e s	TBD	D ape / CCAT
• Numbe of p ojects	24	Belcan /CCAT /D ape
• Equ pment hou s used	1150	D ape / CCAT
• Equ pment o de ed by suppl e s	Yes	D ape / CCAT
• Numbe of p ocesses mplement ng by suppl e n the fac l ty	6	D ape / CCAT

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]	Complete	CCAT	[redacted]
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)		In-process	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)		Implemented	CCAT	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)		Implemented	CCAT	
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)		Implemented	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)		Implemented	CCAT	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)		Implemented	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)		Implemented	CCAT	
Phoenix Manufacturing	Brad Hodgdon, Rob Revere, Salvador Robustelli	Structured Light Scanning (SLS)		Implemented	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)		Investigating	CCAT	
Polamer		Structured Light Scanning (SLS)		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)		Investigating	CCAT	
Aerospace Alloys	Cliff Allison	Structured Light Scanning (SLS)		Investigating	CCAT	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)		Not interested	CCAT	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT	
Barnes Aerospace	Brady Kattman	Structured Light Scanning (SLS)		Not interested	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Debu ng House Inc.	Stephen Cy - Quality Mg	Equipment Recommendation and Engineering Services	[redacted]	Completed	D ape	[redacted]
GKN Aerospace	Martin Thorden - President,	Process Improvement, Equipment Recommendation and Engineering Services	[redacted]	Implemented	D ape	[redacted]
Habco Industries	Brian Montana President & CEO	Process Improvement and Equipment Recommendation	[redacted]	Completed	D ape	[redacted]
Jonal Laboratories, Inc.	Marc Nemeth - President	Process Improvement and Equipment Recommendation	[redacted]	Implemented	D ape	[redacted]
Admiral Machine	Al Pa low	Process Improvement	[redacted]	Investigating	D ape	[redacted]
Avalon Advanced Technologies & Repair Inc.	Vince Faraldino - President, Jeffrey Kelly Quality Mg	Process Improvement	[redacted]	Investigating	D ape	[redacted]
CAM Group LLC		Equipment Recommendation	[redacted]	Investigating	D ape	[redacted]
Flanagan Industries (EDAC)	DECD to define	Equipment Recommendation	[redacted]	Investigating 2/13/2017 Withdrawn	D ape	[redacted]
Pola Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mg		[redacted]	Withdrawn	D ape	[redacted]

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 04/21/2017 03:36:33 PM
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: 4-26-17 RADE Task 5 Weekly Status
Attachments: Supplier Status Draper 4-26-17.xlsx Supplier Status CCAT 4-26-17.xlsx CCAT. X5000. NSI Letter 4-17-17.pdf NSI Equipment Timeline, Milestones and Schedule

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Carmen,

1) [redacted]
2) CCAT/ITC has been in contact with 19 suppliers resulting in 6 active projects and 8 potential projects. Five suppliers have determined that the Blue Light technology is not applicable to their products at this time.
3) [redacted]
4) [redacted]
5) [redacted]
6) [redacted]
7) [redacted]

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Knight, Crystal

From: Devins, Kenneth <kdevins@belcan.com>
Sent: Wednesday, April 19, 2017 4:19 PM
To: Molina-Rios, Carmen
Subject: NSI Equipment Timeline, Milestones and Schedule

Carmen,

Below I have provided estimated times for delivery, set-up and commissioning based on discussions with CCAT and NSI.

Once the Purchase Order is approved NSI can deliver the X5000 Scanner within 10 to 12 weeks. An additional 4 weeks is allocated for installation, training and commissioning for the equipment.

CCAT can have the site prepared within 8 weeks of the Purchase Order approval.

Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

	Timeline, Milestones and Schedule	Responsible Party
Date	**Activity**	
12/15/2016	*DECD receive quote for NSI X-Ray Imaging Systems and Equipment*	*NSI*
12/31/2016	*DECD negotiations completed*	*DECD*
5/15/2017	*Purchase Order to be submitted by DECD*	*DECD*
7/10/2017	**Complete ITC room preparations to install equipment**	**CCAT**

8/7/2017	NSI equipment delivered to DECD at the ITC in East Hartford	NSI
8/11/2017	Complete rigging equipment from loading dock to final location, hook up to power	CCAT
8/25/2017	Complete set-up, installation, testing	NSI
9/4/2017	NSI equipment machine commissioned and Acceptance Test completed	NSI

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NORTH STAR IMAGING, INC.
An ITW Company

19875 S. Diamond Lake Rd.
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Rogers, MN 55374 U.S.A.

Tel: (763) 463-5650
Fax: (763) 463-5651
Toll Free: (800) 635-8392

www.4nsi.com

To: Carmen Molina-Rios
State of Connecticut, Department of Economic Development
505 Hudson Street,
Hartford, CT 06106.

North Star Imaging X5000 Computed Tomography System

North Star Imaging (NSI) manufactures, sells and services state-of-the-art X-ray Imaging systems and CT equipment for industrial use. Our company also designs and develops the software applications used in our systems. NSI provides system solutions from low production or R&D, to high resolution/high production/high energy. NSI is an ISO 9001:2008 certified company.

North Star Imaging is the sole distributor for CT Systems in the United States (Connecticut)

The NSI X5000 225Kv DR.CT System being proposed to Connecticut Center for Advanced Technology is listed at Discount of $449,867.29. This System would retail for $590,000 to the public. NSI is providing a $140,132.71 educational discount.

Details of System Provided by North Star Imaging:

X5000 Seven Axis Manipulator
Movement of the inspection object is limited to x, z, tilt and rotation, along with detector and tube vertical movement.
Some of the other features of the X5000:
· All drives are motorized with variable speed joystick operation
· Tethered desktop control console
· Detector Manipulator:
o Focal Distance: 0” to 48" (0cm to 122cm)
o Detector and Tube Vertical Axis – 48” (122cm)
· Part Manipulator:
o X Axis / front to back translation: 33” (84cm)
o Z Axis / focal distance tube to detector translation: 48" (122cm)
o Tilt: +20 /-20 Degrees,
o CT precision nickel plated 9" rotational stage - 360 Degrees Continuous. Resolution 0.001 degree
· 250lb (113kg) static capacity (not including tilt)
· Integrated electronics
· Aluminum tool plate construction – black anodized
· Precision linear bearing rail
**Exact measurements may vary slightly at time or order based on x-ray source, detector, optional component selection, or revision*

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· Tube Voltage …25 - 225kV
· mA Range …0-3 mA
· Power …320 W max
· Focal Spot Size < 6 microns

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· 16 bit resolution
· 30 fps (2x2 pixel binning) image acquisition; 12.5 fps at full resolution
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To include the following:
· Pixel Mapping Qualification
· Detector Quality Check
· Spatial Resolution
· Contrast Sensitivity Check
· SMPTE Display Test Pattern

<u>efX-DR Software</u>
X-View *efX-DR* is a high-performance image analysis system with a comprehensive set of image analysis tools.
· *Windows*® based (Compatible with Windows 7 or higher)
· Multiple Windows interface
· High performance image processing and measurement functions utilizing GPU technology
· Automatic parallelization for systems with multiple CPU's and GPU's
· Live Imaging up to 30 frames per second
· Live Averaging, Live Histogram, Live line Profile, Live Rotation between portrait and landscape modes
· Live Measurements with 1 pixel resolution
· Live image gain/offset calibration and defective pixel correction
· Automatic creation of Technique sheet for operator record
· Capture video into AVI files.
· Supports digital flat panel detectors, LDA's and digital/analog cameras at 8, 10, 12 and 16 bits.
· Read and store images in TIFF 32 bit / 16 bit / 8 bit, BMP, JPEG, RAW
· Seamless integration with *efX-CT* software

<u>efX-CT FULL Computed Tomography Software</u>
efX-CT is a powerful CT software that includes CT calibration, Cone-Beam reconstruction, 3D real time visualization and analysis tools in the same interface.

NORTH STAR IMAGING, INC.
An ITW Company

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Tel: (763) 463-5650
Fax: (763) 463-5651
Toll Free: (800) 635-8392

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· Easy CT - A 5-steps user-friendly process from the creation of the project to the final results. Easy CT guides the user through the calibration and reconstruction process thanks to an interactive interface and automatic processes.
· AdvancedCT - The user – at anytime – can switch to the advanced mode that gives access to the full set parameters for CT reconstruction.
· Automatic Calibration - This tool has been developed to optimize cone-beam CT reconstruction process and to simplify CT and µCT equipment.
· Cone Beam Reconstruction – Fastest reconstruction times on the market. Reconstruction performed on GPU hardware.
· 3D Volume Rendering – Real time volume rendering. Export slices at any angle, create movie animations, performed localized reconstruction and more.
· 3D Surface Module - Surface extraction to CAD compatible format: Export to STL (Stereolithography), cloud points, OBJ, DXF, WRL, PLY. Visualization in wireframe mode. Map textures with reflection.

Digital Radiography & Intro to CT Training (40 hour course) (One Seat) NSI will provide (1) seats to the 40 hour ASTM/ASNT Certified DR/CT training course, held in Rogers, MN. This course follows the recommended curriculum of FWG-IDR, MAI, ASTM and ASME in a format for compliance with NAS 410 and SNT-TC-1A type Qualification/Certification programs. For more info visit: http://4nsi.com/training

NSI Advanced CT Training (40 Hour course) (One Seat)
NSI will provide one (1) seat to the 40 Hour Advanced CT Class held in Rogers, MN This unique course includes CT Technique Development training, CT Reconstruction and Post Processing training, hands on in the CT lab with access to a wide variety of CT and microCT systems. For more info visit: http://4nsi.com/training

Warranty / 1st Year (1 Visit) - Open Tube

1st Year efX-DR and efX-CT Software Updates

Shipping: Included

X5000 Crating for Shipment

Thank You

Jason Dimon
North East Technical Sales Manager | North Star Imaging
19875 S. Diamond Lake Rd
Rogers, MN 55374
Phone#: 763-200-3432
f. 763-463-5651| jdimon@4nsi.com | www.4nsi.com

NORTH STAR IMAGING, INC.
An ITW Company

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]	ITC & Supplier Complete	CCAT	[redacted]
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)	[redacted]	ITC Complete - Awaiting supplier conclusions	CCAT	[redacted]
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Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)	[redacted]	Not interested	CCAT	[redacted]

Note: Withheld pursuant to CGS § 1-210(b)(5)
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Debu ng House Inc.	Stephen Cy - Quality Mg	Equipment Recommendation and Engineering Services	[redacted]	Completed	D ape	[redacted]
GKN Aerospace	Mat n Thornton - President,	Process Improvement, Equipment Recommendation and Engineering Services		Implemented	D ape	
Habco Industries	Brian Montana President & CEO	Process Improvement and Equipment Recommendation		Completed	D ape	
Jonal Laboratories, Inc.	Marc Nemeth - President	Process Improvement and Equipment Recommendation		Implemented	D ape	
Admiral Machine	Al Parlow	Process Improvement		Inactive	D ape	
Avalon Advanced Technologies & Repair Inc.	Vince Franklin - President, Jeff Fay Kelly Quality Mg	Process Improvement		Inactive	D ape	
CAM Group LLC		Equipment Recommendation		Inactive	D ape	
Flanagan Industries (EDAC)	DECD to define	Equipment Recommendation		Inactive	D ape	
Polar Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mg			Withdrawn	D ape	

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	05/15/2017 03:16:44 PM
To:	Molina-Rios, Carmen
Cc:	Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	5-12-17 RADE Task 5 Weekly Status Report
Attachments:	Lessons Learned-Outcomes-Impacts 5-12-17.xlsx

Carmen,

1) Belcan has complied a summary of lessons learned and examples of outcomes and impacts from Task 5 activities in developing a business model for future government and commercial partnerships (See attachment).

2) Summaries of Draper and CCAT RADE Task 5 activity for the week ending 5/12/17 are listed in the attached files.

3) Since November of 2016 when the ITC was officially started, and the GOM ATOS was finally ordered, about 2,400 hours have been spent by AMC personnel in the ITC.

a) CCAT staff have spent ~1,600 hours demonstrating the GOM ATOS scanner to CT manufacturers.
Activities include:
Informal demonstrations to visitors touring AMC
Formal demonstrations to 14 companies
Currently we have:
5 companies investigating the technology
1 active project
6 complete projects
2 companies not interested in the technology

b) CCAT staff spent ~800 hours on learning how to operate GOM ATOS scanner?
Activities include:
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Recommendations for Governmnent / Commercial Technology parnerships

Draper

- Lessons Learned
  - a) Provide budget flexibility to Draper based on their assessment of potential benefits, do not specify budget limits for each supplier or project.
  - b) Initial outreach to suppliers should be from DECD/Belcan, not Draper, to allay fears of a hidden agenda from Draper.
- Outcomes & Impact
  - a)Suppliers adopt new technologies to enhance their competitiveness
  - Example: Ct supplier to the F135 adopted Structured Light Scanning and 3D printing [redacted]

CCAT

- Lessons Learned
  - a) Streamline equipment purchase process to improve facility planning
  - b) Develop long term sustainability plan
  - c) Define equipment ownership transition process
  - d) Establish technology retirement guidelines for facility planning purposes
- Outcomes & Impact
  - a) Suppliers have the ability to test specific technologies available at the ITC with minimal cost and no risk
  - Example [redacted]

Belcan

- Lessons Learned
  - a) Assign a Technology Manager at initiation of the project to participate is setting objectives
  - b) Define contract objectives with input from all participants
  - c) Clarify limitations on sharing proprietary material between the Technology Manager, Contracters and Government Agencies
- Outcomes & Impact
  - a) Coordinate efforts with Draper, CCAT, DECD ands suppliers, promote synergy and avoid redundant efforts
  - Example: Combined the supplier contacts and lists from Draper, CCAT and Belcan and identified additional suppliers for participation

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 05/24/2017 08:58:20 AM
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: 5-19-17 RADE Task 5 Weekly Status Report
Attachments: Supplier Status CCAT 5-19-17.xlsx Supplier Status Draper 5-19-17.xlsx Lessons Learned-Outcomes-Impacts 5-19-17.xlsx DECD RADE 5 Status 5-19-17.xlsx

---

Carmen,

1) Updated status files are attached.
2) The Purchase Order with North Star Imaging for the proposed X-Ray scanner is in work.

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Task 5 – Manufacturing Innovation

Increase CT Companies cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

Sub Tasks:

5.1 Hire technical coordinator	Complete 11/15/16	Belcan
5.2 Acquire and/or lease machinery, equipment	Complete 11/15/16	CCAT
5.3 Installation of machinery and equipment	Complete 11/15/16	CCAT
5.4 Perform outreach to supply chain	Initial survey 1/31/16, follow-up ongoing	DECD / Belcan
5.5 Identify training needs	GOM ATOS Complete 11/15/16	CCAT
5.6 Deliver training (if/when appropriate)	Complete 12/7/16	CCAT
5.7 Process Improvement project implementation	TBD	Draper
5.8 Analyze/report on manufacturing innovation	TBD	Belcan /CCAT /Draper

Deliverable:

• CT Innovation Technology Center is established, operational, and staffed	Complete 12/15/16	CCAT
• Suppliers are aware of ITC and its capabilities	Initial survey 1/31/16, follow-up ongoing	DECD / Belcan
• Participating companies staff trained on new processes and technologies	1/11/2017	Draper / CCAT
• Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies	Ongoing	Belcan /CCAT /Draper
• Manufacturing Technology Innovation Needs Statement	Computed Tomography	Belcan /CCAT

Metrics:

• A minimum of 20 supply chain companies participate	18	Draper - 7, CCAT - 11
• A minimum of 10 projects implemented	14	Draper 13/ CCAT 1
• Available hours used on the equipment by suppliers	1150	CCAT
• Number of projects	24	Belcan /CCAT /Draper
• Equipment hours used	950	CCAT
• Equipment ordered by suppliers	Yes	Draper / CCAT
• Number of processes implementing by supplier in their facility	6	Draper / CCAT

Recommendations for Governmnent / Commercial Technology parnerships

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Draper

Lessons Learned

a) Provide budget flexibility to Draper based on their assessment of potential benefits, do not specify budget limits for each supplier or project.

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Outcomes & Impact

a)Suppliers adopt new technologies to enhance their competitiveness

Example: Ct supplier to the F135 adopted Structured Light Scanning and 3D printing [redacted]

CCAT

Lessons Learned

a) Streamline equipment purchase process to improve facility planning

b) Develop long term sustainability plan

c) Define equipment ownership transition process

d) Establish technology retirement guidelines for facility planning purposes

Outcomes & Impact

a) Suppliers have the ability to test specific technologies available at the ITC with minimal cost and no risk

[redacted]

Belcan

Lessons Learned

a) Assign a Technology Manager at initiation of the project to participate is setting objectives

b) Define contract objectives with input from all participants

c) Clarify limitations on sharing proprietary material between the Technology Manager, Contracters and Government Agencies

Outcomes & Impact

a) Coordinate efforts with Draper, CCAT, DECD ands suppliers, promote synergy and avoid redundant efforts

Example: Combined the supplier contacts and lists from Draper, CCAT and Belcan and identified additional suppliers for participation

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Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
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Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)	[redacted]	Active	CCAT	[redacted]
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Phoenix Manufacturing		Structured Light Scanning (SLS)	[redacted]	Active	CCAT	[redacted]
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EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
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Polamer		Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
Vista International Soundstik		Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
Aerospace Alloys		Structured Light Scanning (SLS)	[redacted]	Not interested	CCAT	[redacted]
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Debu ng House Inc.	Stephen Cy - Qual ty Mg	Equ pment Recommendat on and Eng nee ng Se v ces	[redacted]	Completed	D ape	[redacted]
GKN Ae ospace	Ma t n Tho den - P es dent,	P ocess Imp ovement, Equ pment Recommendat on and Eng nee ng Se v ces	[redacted]	Implemented	D ape	[redacted]
Habco Indust es	B an Montana P es dent & CEO	P ocess Imp ovement and Equ pment Recommendat on	[redacted]	Completed	D ape	[redacted]
onal Labo ato es, Inc.	Ma c Nemeth - P es dent	P ocess Imp ovement and Equ pment Recommendat on	[redacted]	Implemented	D ape	[redacted]
Adm E Mach ne	Al Pa low	P ocess Imp ovement	[redacted]	Inact ve	D ape	[redacted]
Avalon Advanced Technolog es & Repa Inc.	V no F anklin - P es dent, Jeff ey Kelly Qual ty Mg	P ocess Imp ovement	[redacted]	Inact ve	D ape	[redacted]
CAM G oup LLC		Equ pment Recommendat on	[redacted]	Inact ve	D ape	[redacted]
Flanagan Indust es (EDAC)	DECD to def ne	Equ pment Recommendat on	[redacted]	Inact ve	D ape	[redacted]
Pola Co po at on	Andy Kowalsk - P es dent, Tyson Szewczyk - Qual ty Mg		[redacted]	W thd awn	D ape	[redacted]

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 06/19/2017 09:39:50 AM
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: 6-16-17 RADE Task 5 Weekly Status Report
Attachments: DECD RADE 5 Status 6-16-17.xlsx Supplier Status CCAT 6-16-17.xlsx Supplier Status Draper 6-16-17.xlsx NSI Installation Schedule 5-30-17.xlsx

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Carmen,

1) Updated status files are attached.
2) Facility preparation in the ITC at CCAT is ongoing in anticipation of the installation of the NSI X5000 X-ray Scanner.
3) Working to review Final Supplier and Innovation Needs Reports from Draper. Draper has suggested interim reports.

Deliverable	Due	Submission Notes
Quarterly* Status Report	30 days after quarter/month end	Last submission: 11 May 2017
Final Supplier Report**	30-Sep-17	First Submission In process
Innovation Report**	30-Sep-17	Not yet due
Supplier Project Reports	30 days after project completion	HABCO: Submitted 21 November 2016 Deburring House: Submitted 30 November 2016 Jonal: Submitted 7 April 2017 GKN: Submitted 7 April 2017

* Status Reports are due contractually on a quarterly basis. It was agreed in January 2016 that Draper would provide monthly status reports.

** Following the March 2017 contract extension, it is recommended that the Final Report be split in two parts; Final Supplier Report to address supplier projects and the Innovation Report. The Final Supplier Report would be resubmitted to address any new supplier projects.

Regards,
Ken

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Windsor, Ct 06095
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Cell Phone 203-584-8958

Task 5 – Manufacturing Innovation

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Metrics:

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• Equipment hours used	950	CCAT
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	Timeline, Milestones and Schedule	
Date	**Activity**	**Responsible Party**
12/15/2016	*DECD receive quote for NSI X-Ray Imaging Systems and Equipment*	*NSI*
12/31/2016	*DECD negotiations completed*	*DECD*
~~*5/15/2017*~~ *5/30/2017*	*Purchase Order to be submitted by DECD*	*DECD*
7/24/2017	Complete ITC room preparations to install equipment	CCAT
8/21/2017	NSI equipment delivered to DECD at the ITC in East Hartford	NSI
8/25/2017	Complete rigging equipment from loading dock to final location, hook up	CCAT
9/8/2017	Complete set-up, installation, testing	NSI
9/18/2017	NSI equipment machine commissioned and Acceptance Test completed	NSI

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From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 06/26/2017 01:04:40 PM
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: 6-23-17 RADE Task 5 Weekly Status Report
Attachments: DECD RADE 5 Status 6-23-17.xlsx Supplier Status CCAT 6-23-17.xlsx Supplier Status Draper 6-23-17.xlsx NSI Installation Schedule 5-30-17.xlsx

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Carmen,

1) Updated status files are attached.
2) Facility preparation in the ITC at CCAT is progressing in anticipation of the 7/24/17 completion date.
3) Draper will be presenting at the July MIF meeting their interim findings for the Innovation Report.

Regards,
Ken

Belcan Engineering
175 Addison Rd.
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Task 5 – Manufacturing Innovation

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• Number of projects	24	Belcan /CCAT /Draper
• Equipment hours used	950	CCAT
• Equipment ordered by suppliers	Yes	Draper / CCAT
• Number of processes implementing by supplier in their facility	6	Draper / CCAT

	Timeline, Milestones and Schedule	
Date	**Activity**	**Responsible Party**
12/15/2016	*DECD receive quote for NSI X-Ray Imaging Systems and Equipment*	*NSI*
12/31/2016	*DECD negotiations completed*	*DECD*
~~*5/15/2017*~~ *5/30/2017*	*Purchase Order to be submitted by DECD*	*DECD*
7/24/2017	Complete ITC room preparations to install equipment	CCAT
8/21/2017	NSI equipment delivered to DECD at the ITC in East Hartford	NSI
8/25/2017	Complete rigging equipment from loading dock to final location, hook up	CCAT
9/8/2017	Complete set-up, installation, testing	NSI
9/18/2017	NSI equipment machine commissioned and Acceptance Test completed	NSI

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]	ITC & Supplier Complete	CCAT	[redacted]
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)		Active	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)		Active	CCAT	
Phoenix Manufacturing		Structured Light Scanning (SLS)		Active	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)		Investigating	CCAT	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)		Investigating	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)		Investigating	CCAT	
Alpha Q		Structured Light Scanning (SLS)		Investigating	CCAT	
Polamer		Structured Light Scanning (SLS)		Investigating	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)		Investigating	CCAT	
Vista International Soundstik		Structured Light Scanning (SLS)		Investigating	CCAT	
Aerospace Alloys		Structured Light Scanning (SLS)		Not interested	CCAT	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)		Not interested	CCAT	
Barnes Aerospace		Structured Light Scanning (SLS)		Not interested	CCAT	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)
Note: Withheld pursuant to CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Debu ng House Inc.	Stephen Cy - Quality Mg	Equipment Recommendation and Engineering Services	[redacted]	Completed	D ape	[redacted]
GKN Aerospace	Mike Thornton - President,	Process Improvement, Equipment Recommendation and Engineering Services	[redacted]	Implemented	D ape	[redacted]
Habco Industries	Brian Montana President & CEO	Process Improvement and Equipment Recommendation	[redacted]	Completed	D ape	[redacted]
Jonal Laboratories, Inc.	Mike Nemeth - President	Process Improvement and Equipment Recommendation	[redacted]	Implemented	D ape	[redacted]
Admiral Machine	Al Pallow	Process Improvement	[redacted]	Inactive	D ape	[redacted]
Avalon Advanced Technologies & Tape Inc.	Vince Franklin - President, Jeff Kelly Quality Mg	Process Improvement	[redacted]	Inactive	D ape	[redacted]
CAM Group LLC		Equipment Recommendation	[redacted]	Inactive	D ape	[redacted]
Flanagan Industries (EDAC)	DECD to define	Equipment Recommendation	[redacted]	Inactive	D ape	[redacted]
Polish Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mg		[redacted]	Withdrawn	D ape	[redacted]

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	12/12/2016 05:03:45 PM
To:	Holmes, Steven M. <sholmes@draper.com>; Wittstein, Bryan E. <bwittstein@draper.com>
Cc:	Wayne Sumple <wsumple@ccat.us>; Don Balducci <dbalducci@ccat.us>; Molina-Rios, Carmen
Subject:	Active Projects for CCAT GOM ATOS Support 121216.xlsx
Attachments:	Active Projects for CCAT GOM ATOS Support 121216.xlsx

Steve, Bryan,

I noticed that your projects for the following suppliers recommend the use of light scanning.

1) CAM Corp
2) Deburring House
3) GKN
4) Flanagan
5) Jonal
6) Habco

Please advise all of these companies that confirmed interest that the ITC has the GOM ATOS Scanbox available for a "try it before you buy it" trial run. Wayne Sumple at CCAT is available and ready to arrange such projects. GKN and Flanagan have previously been discussing this with Wayne and they can start immediately.

Deburring House and Jonal might also be able to start projects at ITC quickly since their project final reports have been completed.

Thanks,
Ken

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Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Appendix A: Supplier Screening Status

Project Type	Project Description	Supplier Name	Status	Project Lead	Results of Phone Screen	Follow Up/Notes
Scanning	[redacted]	Alloy Specialties, Inc.	Active	Draper	Confirmed Interested	[redacted]
Process Improvement		Avalon Advanced Tech	Active	Draper	Initial Interest	
Equipment Recommendation		CAM Group LLC	On Hold	Draper	Confirmed Interested	
Equipment Recommendation and Engineering Services		Deburring House Inc.	Completed	Draper	Confirmed Interested	
Equipment Recommendation		Flanagan Industries	Active	Draper	Confirmed Interested	
Scanning		Flanagan Industries	Active	CCAT	Investigating	
Scanning		GKN Aerospace Newington LLC	Active	CCAT	Investigating	
Process Improvement, Equipment Recommendation and Engineering Services		GKN Aerospace Services Structures Corp	Active	Draper	Confirmed Interested	
Process Improvement and Equipment Recommendation		Habco Industries	Completed	Draper	Confirmed Interested	
Process Improvement and Equipment Recommendation		Jonal Laboratories, Inc.	Active	Draper	Confirmed Interested	
Process Improvement		ACMT, Inc.	Inactive	Draper	Not Interested	
Process Improvement		Aerospace Testing Laboratory, Inc.	Inactive	Draper	Not Interested	
Process Improvement		CT Tool & Manufacturing Co.	Inactive	Draper	Not Interested	
Process Improvement		E/M Coating Services	Inactive	Draper	Not Interested	
Process Improvement		GKN Aerospace Newington LLC	Inactive	Draper	Not Interested	
Process Improvement		J&L Machine Company Inc.	Inactive	Draper	Not Interested	
Process Improvement		Metals Testing Company	Inactive	Draper	Not Interested	
Process Improvement		New England Metal Finishing	Inactive	Draper	Not Interested	
Process Improvement		Park City Packaging, Inc.	Inactive	Draper	Not Interested	
Process Improvement		Plainville Plating Co.	Inactive	Draper	Not Interested	
Process Improvement		Polamer Precision	Inactive	Draper	No Response	
Process Improvement		Quality Engineering Services	Inactive	Draper	Not Interested	
Process Improvement		Skillcraft Machine Tool Co.	Inactive	Draper	Not Interested	
Process Improvement		Spartan Aerospace, LLC	Inactive	Draper	Not Interested	
Process Improvement		Technical metal Finishing	Inactive	Draper	Not Interested	
Process Improvement		Timken Aerospace Drive Systems	Inactive	Draper	No Response	
Process Improvement		West Hartford Tool & Die Co.	Inactive	Draper	Not Interested	

Process Improvement	[redacted]	Whitcraft, LLC	Inactive	Draper	No Response	[redacted]
Process Improvement		Admill Machine	On Hold	Draper	Initial Interest	
Process Improvement		Aero Gear, Inc.	On Hold	Draper	No Response	
Process Improvement		AGC Incorporated	On Hold	Draper	No Response	
Process Improvement		Airex Rubber Products Corp.	On Hold	Draper	No Response	
Process Improvement		Alinabal, Inc.	On Hold	Draper	No Response	
Process Improvement		Atlas	On Hold	CCAT	Potential	
Process Improvement		Bauer, Inc.	On Hold	Draper	Initial Interest	
Process Improvement		Birken Manufacturing	On Hold	Draper	No Response	
Process Improvement		Budney Aerospace, Inc.	On Hold	Draper	Initial Interest	
Process Improvement		Cambridge Specialty Co	On Hold	Draper	No Response	
Process Improvement		E&S Gage Company	On Hold	Draper	No Response	
Process Improvement		E.A. Patten Co	On Hold	Draper	No Response	
Process Improvement		EDAC Aero.	On Hold	Draper	No Response	
Process Improvement		Harco Laboratories, Inc.	On Hold	Draper	No Response	
Process Improvement		Har-Conn Chrome Company	On Hold	Draper	No Response	
Process Improvement		Metallizing Service Co.	On Hold	Draper	No Response	
Scanning		New England Airfoil Products	On Hold	CCAT	Potential	
Process Improvement		Numet Machining Techniques, Inc.	On Hold	Draper	Initial Interest	
Process Improvement		Paradigm Precision	On Hold	Draper	Initial Interest	
Process Improvement		Praxair Surface Technologies, Inc.	On Hold	Draper	No Response	
Process Improvement		Ramar-Hall, Inc.	On Hold	Draper	No Response	
Process Improvement		Reno Machine Company, Inc.	On Hold	Draper	Initial Interest	
Process Improvement		Satellite Tool & Machine Co.	On Hold	Draper	No Response	
Process Improvement		Service Steel Aerospace	On Hold	Draper	No Response	
Process Improvement		Sterling Engineering Corp.	On Hold	Draper	No Response	
Process Improvement		Turbine Technologies, Inc.	On Hold	Draper	No Response	
Scanning		B&E Precision Aircraft Components	On Hold	CCAT	Potential	
Scanning		Curtis WrightSurface Technologies	On Hold	CCAT	Potential	
Scanning		LFI Inc.	On Hold	CCAT	Potential	
Scanning		Turbocam	On Hold	CCAT	Potential	
Scanning		Turbine Technologies, Inc.	On Hold	CCAT	Potential	

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 03/15/2017 09:52:11 AM
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>; Helton, Raven M. <rhelton@belcan.com>
Subject: Belcan RADE 2 Task 5 February Invoice and Progress Report
Attachments: 4180_001.pdf RADE Task 5 February 2017 Status Report

---

Carmen,

Attached is the Belcan Invoice and associated Progress Report for February.

Please call if there are any questions.

Thanks,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Belcan

INVOICE

INVOICE NO.

2209681

Belcan Engineering Group, LLC
10200 Anderson Way
Cincinnati OH 45242
(513) 891-0972

Invoice Date: 02/26/17

Week Ending **02/26/17**

Customer P.O. No. ECDM1-0000013114

Belcan Job#: 3549030

Terms: Net 60 Days

CT DECD (Dept. of Economic & Comm. Dev)
Business & Econcomic Development
505 Hudson Street, 4th Floor
Hartford CT 06106-7106 USA

Prior Invoiced: $21,225.00

Attn.: Michelle Richmond

P.O. Limit: $148,500.00

RADE 2- Task 5

STOCK COMMERCIAL

Technical Contact: Rios-Molina, Carmen

ITEM	TYPE	UNITS	RATE	AMOUNT
	Straight Time	7.50	75.00	562.50
Technology Project Manager	Straight Time	105.00	75.00	7,875.00

PLEASE REMIT TO:
Belcan Engineering Group, LLC
Lockbox 771430
1430 Solutions Center
Chicago IL 60677-1004

PLEASE REMIT THIS AMOUNT-> $ 8,437.50
IN U.S. DOLLARS THANK YOU

ORIGINAL

From: Devins, Kenneth
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; Vesce, Jennifer D Belcan Engineering Group, Inc
Subject: RADE Task 5 February 2017 Status Report
Attachments: CCAT-ITC Project List 022717.xlsx
Connecticut RADE Task 5 Site Visit Agenda 022417.docx
ITC Marketing Flyer E.DOCX
ITC Sustainment beyond Task 5.msg
CCAT ITC Equipment Proposal 021017.pdf

Carmen,

As requested a summary of RADE Task 5 activity for February is listed below:

1) To date the GOM ATOS has accumulated 550 hours on activities including informal demonstrations to visitors touring AMC, formal demonstrations to 13 companies. 4 active project and one complete project. In addition CCAT staff spent 630 hours learning how to operate GOM ATOS scanner. The activities included preparing space at the AMC for the ITC, managing the delivery and installment of the GOM ATOS, formal training provided by 3D Systems and informal training and practice on operation of hardware and software.

2) A summary of GOM ATOS projects at the CCAT/ITC is attached.
3) Draper projects with supplier participation are listed below. To date Draper is actively working 11 projects with 4 suppliers with 1 additional project submitted to DECD for approval.
   Deburring House – Closed; additional project submitted to DECD for approval.
   Deburring House purchased a David SLS-3 3D scanning system which will be used with the GOM Inspect software. The 3D printing system that was purchased was the MakerGear M2.
   Habco – Closed; 3 projects complete
   GKN – 3 projects in progress / 0 projects complete / 3 Total
   Jonal – 3 projects in progress / 1 project complete / 4 Total
   Additional work is required with Flanagan, Admill and Avalon to initiate projects.
   Flanagan - Currently working with Flanagan to determine best approach forward, including whether new NDA's need to be signed through EDAC.
   Admill & Avalon – Following Draper's attempt to confirm, pending verification from DECD on confirmation of interest; Draper has not received any further confirmation.
   CAM and Polar will not be participating.
   CAM - Did not wish to sign the letter of intent or NDA; updating to status to withdrawn or inactive.
   Polar –Withdrawn and stated they do not wish to participate.

4) Belcan, CCAT and Draper participated in a technical review of Task 5 with representatives of the Center for Regional Economic Competitiveness (CREC). The agenda is attached.

The CCAT demonstration included participation of Satellite Tool & Machine president Jack Lukasik and representatives from Belcan, CCAT and CREC.

After the demonstration the CREC representatives were given a tour of the CCAT facility. The CCAT portion of the agenda was completed with a conference call with Andreas Andersson from GKN that allowed CREC to gain additional perspective on the process by which the Blue Light technology was being shared and the benefits accrued to this supplier. The Belcan and CREC representatives then travelled to East Berlin to walk the production process at Deburring House. Representatives of Draper had arranged a tour of the facility with Steve Cyr, Quality manager. The tour included the review of a variety of parts including F135 fan rotors and a lengthy discussion of the benefits provided to the supplier. As a result of Drapers process review the supplier has purchased a Blue Light scanner and 3D printer for inclusion into their production process.

5) CREC requested and received a copy of the marketing letter that Belcan and CCAT used in soliciting supplier participation in Task 5 (See attachment).

6) With guidance from Belcan CCAT prepared a revised ITC Sustainment Proposal including cost and floor space details (See attachment).

7) Members of the Belcan supplier team met to discuss options for technology insertion business models that can be sustained without state or federal financial support. The only alternative that we have seen to be successful is when large suppliers such as GKN or prime contractors such as PW, UTC or Lockheed Martin provide support and resources. A good example of this is the teaming of the non-profit CCAT with GKN in acquiring and operating the Zimmerman composite machining system. In this case there is a potential to gain support from GKN to enhance the effectiveness of this composite equipment at CCAT with onsite inspection capability with both the GOM ATOS and the proposed Computed Tomography x-ray scanner. These types of efforts are usually targeted toward support of a specific product application and reflect a synergy with the larger companies strategic business plan. In this regard PW is already working with their aerospace industry supplier base, but could benefit from utilizing CCAT and the ITC equipment as an additional resource.

Regards,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Note: Withheld pursuant to CGS § 1-210(b)(5) and CGS § 32-244(a)(13)

PRGM COMPANY PROJECT T' PROP # PHASE PROJECT DESCRIPTION STATUS PROJECT LI PROJ END SURVEY Sen SURVEY Rec'd

PRGM	COMPANY	PROJECT TYPE	PROP #	PHASE	PROJECT DESCRIPTION	STATUS	PROJECT LEAD	PROJ END DATE	SURVEY Sent	SURVEY Rec'd
ITC	Hubbell	scanning				investigating	Wayne			
ITC	CT Tool	scanning				investigating	Wayne			
ITC	Satelite Tool	scanning				investigating	Wayne			
ITC	Polamer	scanning				investigating	Nasir			
ITC	Alpha Q	scanning				investigating	Nasir			
ITC	EDAC	scanning				investigating	Wayne			
ITC	Aerospace Alloys	scanning				investigating	Wayne			
ITC	Phoenix Manufacturing	scanning	1730			in-progress	Don			
ITC	NEAP	scanning				in-progress	Nasir			
ITC	Flanagan	scanning				in-progress	Nasir			
ITC	GKN Newington	scanning	1618			complete	Nasir	23-Jan		
ITC	Barnes Aerospace	scanning				cancelled	Wayne			

Innovation Technology Center (ITC)

The State of Connecticut is looking for Connecticut defense manufacturers who want to evaluate if Structured Light Scanning (SLS) technology works for them. CT manufacturers can have a Demonstration Project performed at the newly constructed ITC. The ITC is sponsored by the Department of Defense Office of Economic Adjustment and the Connecticut Department of Economic and Community Development. The ITC is 1000 ft^2 of lab space managed by the Connecticut Center for Advanced Technology Inc. (CCAT) in East Hartford. There is no cost to participate.

WHAT IS A DEMONSTRATION PROJECT?

A demonstration project will allow CT manufacturers to evaluate structured light scanning technology against technologies (CMM or manual inspections) they are currently using. This will be done by using new technology on real parts and comparing results to what suppliers currently are achieving. A Structured Light Scanning Demonstration Project will allow suppliers to have one of their own manufactured parts scanned using the structured, blue light scanner available at the ITC:

- The GOM ATOS Scanbox 5108 is an optical 3D measuring machine developed for quality control in larger production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. (GOM Website)

CCAT personnel will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so that results from the new technology can be compared directly to results from the current technology being used by the supplier.

WHY DO AN SLS DEMONSTRATION PROJECT AT THE ITC?

- Mechanical measuring machines capture data in a point-based or linear manner while optical 3D coordinate measuring systems provide full-field deviations of 3D actual coordinates and CAD data
- The GOM ATOS machine is one example of optical scanning technology
- Compare new technology capabilities to current technology capabilities
- Evaluate impact on effectiveness, efficiency and productivity of new technology
- A Demonstration Project is FREE to CT defense manufacturers

A Non-Disclosure Agreement (NDA) can be executed to protect the manufacturer's process knowledge. CCAT is an ITAR controlled facility.

HOW DO I APPLY?

Complete the simple on-line application by going to the ITC Assistance Application and checking the box for "Structured light scanning/reverse engineering", or contact Mr. Wayne Sumple at CCAT or Mr. Ken Devins at Belcan.

Wayne Sumple
CCAT's Advanced Manufacturing Center
409 Silver Lane
East Hartford, CT. 06118
wsumple@ccat.us
860-282-4222

Ken Devins
Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
kdevins@belcan.com
860-683-5367

DEMONSTRATION PROJECT PROCESS

1. CT manufacturer to sign Non-Disclosure Agreement (NDA)
2. CT manufacturer to sign Export Control Intake Certification (ECIC)
3. CT manufacturer to complete Assistance Application for Structured Light Scanning
    a. Describe part(s) to be scanned
        i. Name of part
        ii. # of parts
        iii. Special handling instructions
    b. STRUCTURED LIGHT SCANNING (SLS)
        i. Identify data to be gathered during SLS demonstration project
            1. Time to process
            2. Cost to process - material consumed during process
            3. Metrology criteria – list of specific measurements or dimensional values required for evaluation of SLS
            4. Comparison of new measurements or dimensional values generated with SLS in the ITC to existing data taken by the SME at their facility
            5. Shipping/receiving instructions
    c. Provide format for report data
    d. Identify how part(s) will be delivered to/from ITC
        i. Supplier to hand carry to ITC
        ii. Supplier to ship to ITC

STATE OF CONNECTICUT

Innovation Technology Center
(ITC)

CONNECTICUT CENTER FOR ADVANCED TECHNOLOGY, INC.

Proposal for Program Funding & Administration

February 10, 2017

Introduction and Foreword:

The Connecticut Center for Advanced Technology, Inc. (CCAT) respectfully submits this Economic Development Grant Proposal which seeks support for the continuation of the OEA RADE equipment currently in the Innovation Technology Center (ITC). For the period beginning immediately after the expiration of the OEA RADE program, CCAT proposes to use the acquired equipment as part of our mission to serve manufacturers with a special focus on Pratt & Whitney's supply chain for the F-135 engine.

About CCAT:

CCAT is a non-stock, tax-exempt corporation incorporated on May 3, 2004, and is funded under federal and state sponsored grants. CCAT's mission is to address 21st century economic challenges by creating partnerships which collaboratively provide services and resources to industry, academia, government and non-profit organizations that help them implement innovative solutions, increase efficiencies and improve workforce development. To be acknowledged by our clients as the "go to" resource for improving America's competitiveness and as the best practices partner for organizations and businesses with a technology focus. We will deliver value-added programs efficiently and effectively, with a bold entrepreneurial spirit, and attract the best and brightest people to our collaborative culture and landmark facilities.

Program Background and Summary:

The ITC was created as part of the OEA RADE contract with the federal government. Its purpose is to introduce new manufacturing technology to manufacturers with a particular focus on Pratt & Whitney's F-135 supply chain in preparation for future production. This Center is located at CCAT's Advanced Manufacturing Center and, as of the writing of this proposal, housed a GOM Atos Blue Light scanner purchased under the OEA RADE program as cost share. A second piece of equipment is contemplated (CT X-ray Scanning) but has not been fully defined yet.

CCAT proposes any equipment bought under the OEA RADE program become part of CCAT's AMC by means of a no-cost transfer. This equipment will continue to be used to demonstrate advanced technologies to manufacturers with a particular focus on the F-135 supply base for the same purpose for which it was originally intended. The equipment will become part of a pool of advance technology used by CCAT. CCAT will fund labor and maintenance expense using current and future federal, state and industry funding as applicable and will not require any new funding from the DECD.

Administrative Qualifications & Justification

CCAT has been involved with manufacturing technology since the company's inception in 2004. Our Advanced Manufacturing Center (AMC) serves as a national resource for applied manufacturing technology and boasts some of the most modern manufacturing equipment currently available in the marketplace. With the rapidly expanding interest in additive manufacturing, CCAT has also added both metal and plastic 3D printing capability to its inventory of advanced manufacturing equipment. CCAT recently installed a Hybrid DMG machine and is in the process of installing a new CNC Portal Milling Machine from Zimmermann for composites. The latest High Rate Additive Manufacturing (HRAM) equipment is expected to be installed later this year.

Through site visits, surveys, and research CCAT continually seeks to understand the needs of small and medium-sized manufacturers (SMMs). CCAT's history of conducting technology workshops, providing manufacturing training and productivity assessments to small and medium sized manufacturers makes it uniquely qualified to manage the additional equipment from the OEA RADE program. Included among our staff are degreed engineers and machinists with decades of combined manufacturing experience. Many individuals on our staff have also worked in manufacturing environments and understand the many unique challenges faced by manufacturers.

CCAT believes our AMC would be the best, most cost effective use of the OEA RADE equipment. CCAT has the right facility, staff, and programs to continue to effectively use this equipment in the manner it was intended. Our staff has been fully trained to use this equipment and has experience on projects with manufacturers using it. DECD would incur significant cost to rig out and move this equipment to any other location as well as potentially damaging it during a move.

The GOM Atos has already proven valuable to the manufacturing supply chain as we have received projects/inquirers from; EDAC, Flanagan, GKN, Hubbell, NEAP Phoenix, Satellite Tool, Alpha Q, Polamer, Pratt & Whitney (P&W) and Vivax Medical companies. We have also had interest from the Air Force Research Laboratory (AFRL) for measurement of artifacts to prove out the technology.

Program Summary & Procedures

1. **Overall Objective**

   CCAT's primary objective will be to make the OEA RADE equipment available to the manufacturing supply chain with a special emphasis on P&W's F-135 suppliers. CCAT will use funding from the various federal and state programs to fund this effort as well as appropriate cost share from manufacturers. We will follow whichever procedures are required by the funding source.

   CCAT will keep the equipment in good working order for the extent of its useful life, estimated to be approximately seven years. This equipment will become part of CCAT's fixed assets which are audited annually by an independent audit firm, a copy of which is supplied to the State of Connecticut each year.

2. **Management**

   The management of this equipment will be part of CCAT's AMC Directors' duties and responsibilities. He/she will be responsible for maintaining the equipment and for carrying out the objective of making it available to manufacturers and the F-135 supply chain.

3. **Reporting**

   At DECD's request, CCAT will provide a yearly summary of projects which used the OEA RADE equipment for the duration of its useful life. This summary would include:

   a.) Project description
   b.) Company
   c.) Funding source
   d.) Impact/outcome

4. **Scope of Services**

   Not applicable

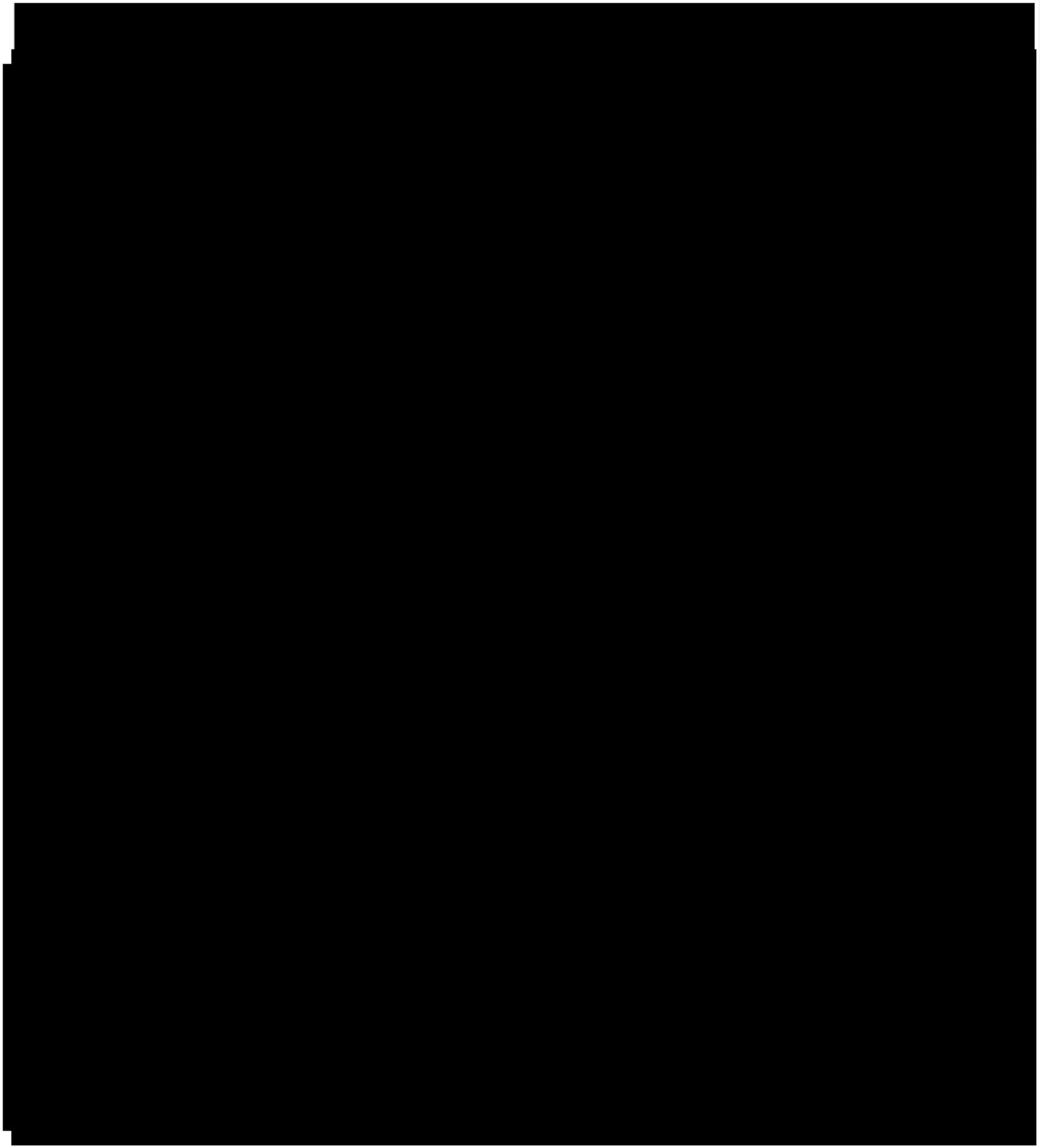
5. **Budget Narrative**

   No further funds are requested after the completion of the OEA RADE program. Attachment #1 estimates future funding sources to sustain the equipment.

6. **Payment Schedule**

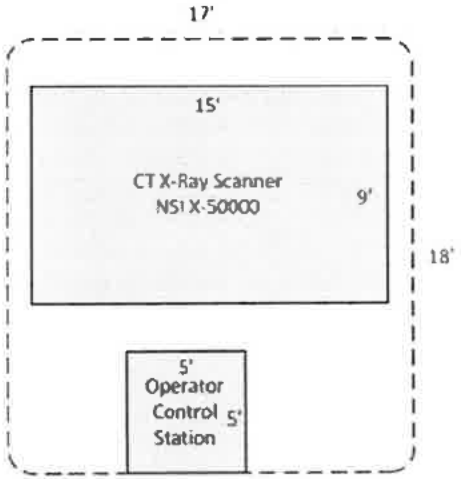
   Not applicable

Note: Withheld pursuant to CGS § 1-210(b)(5) and CGS § 32-244(a)(13)

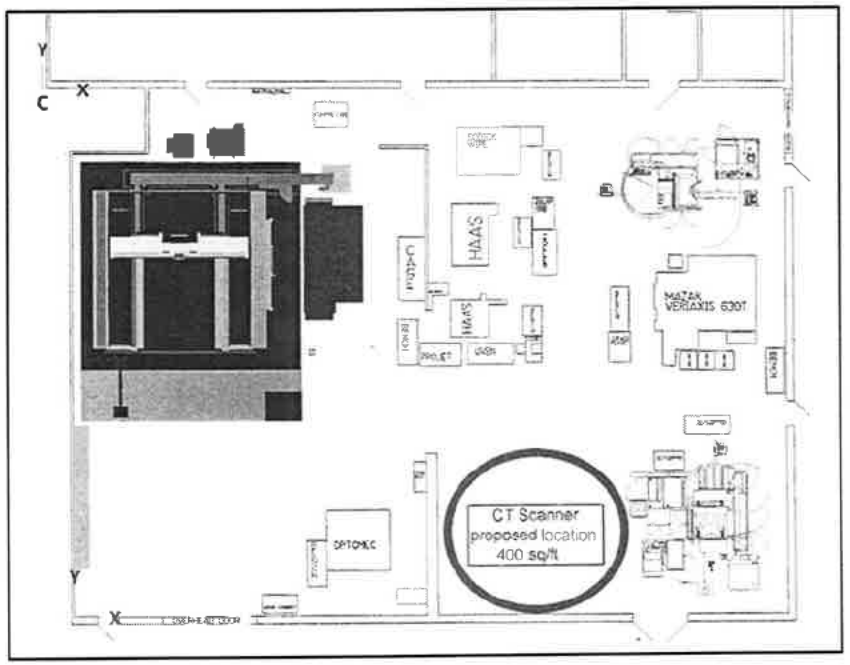


CT X-RAY SCANNER
NSI X5000
PLANNING DOCUMENT

- Rigging cost – assumes 15,000 pounds, delivered in crate, requiring assembly (3rd party) = $3,000
- Electrical hookup – assumes 208 voltage installed by 3rd party = $2,000
- Required Space = 306 ft2 per documents provided by NSI see sketch A below
- Available Space on AMC main floor = 400 ft2 located per sketch B below



Sketch A
Required space = 306 ft^2



Sketch B
Available space = 400 ft2

Connecticut RADE – Task 5 Site Visit

CREC – February 24, 2017

8:00 – 9:30 am CCAT Advanced Manufacturing Center

Contact: Don Balducci, CCAT
Address: 409 Silver Lane City East Hartford, CT 06118
Phone: 860 282-4942
Email: dbalducci@ccat.us
- See OEA grant purchased Blue Light Inspection Machine

10:30 – noon DRAPER Company Visit: Deburring House

Contact: Bryan Wittstein, Draper Laboratories
Company Address: 230 Berlin Street, East Berlin, CT 06023
Phone: 617-258-1519
Email: bwittstein@draper.com
- Deburring's capabilities include a wide range of edge and surface conditioning processes to meet the varied needs of the precision machining industry.

Noon - 1:30 pm Lunch w/ Draper & Belcan Engineering

Contact: Ken Devins, Belcan Engineering
Address: TBD
Phone: 203-584-8958
Email: kdevins@belcan.com

2:30 - 4:30 pm Wrap-Up Session (DECD, CCAT, Belcan, Draper)

Contact: Sue Palisano, CCAT
Address: 222 Pitkin Street, East Hartford CT 06108
Phone: 860-282-4224
Email: spalisano@ccat.us
- Phone calls with companies using Task 5 equipment; other issues

Contact: Carmen Molina-Rios, DECD
Phone: 203.886.8353
Email: Carmen.molinarios@ct.gov

To Airport

Center for Regional Economic Competitiveness (CREC) Staff

Marty Romitti, Ph.D. CREC
mromitti@crec.net
cell: 573.808.1536

Randall Arthur, CREC
rarthur@crec.net
cell: 908.477.9471

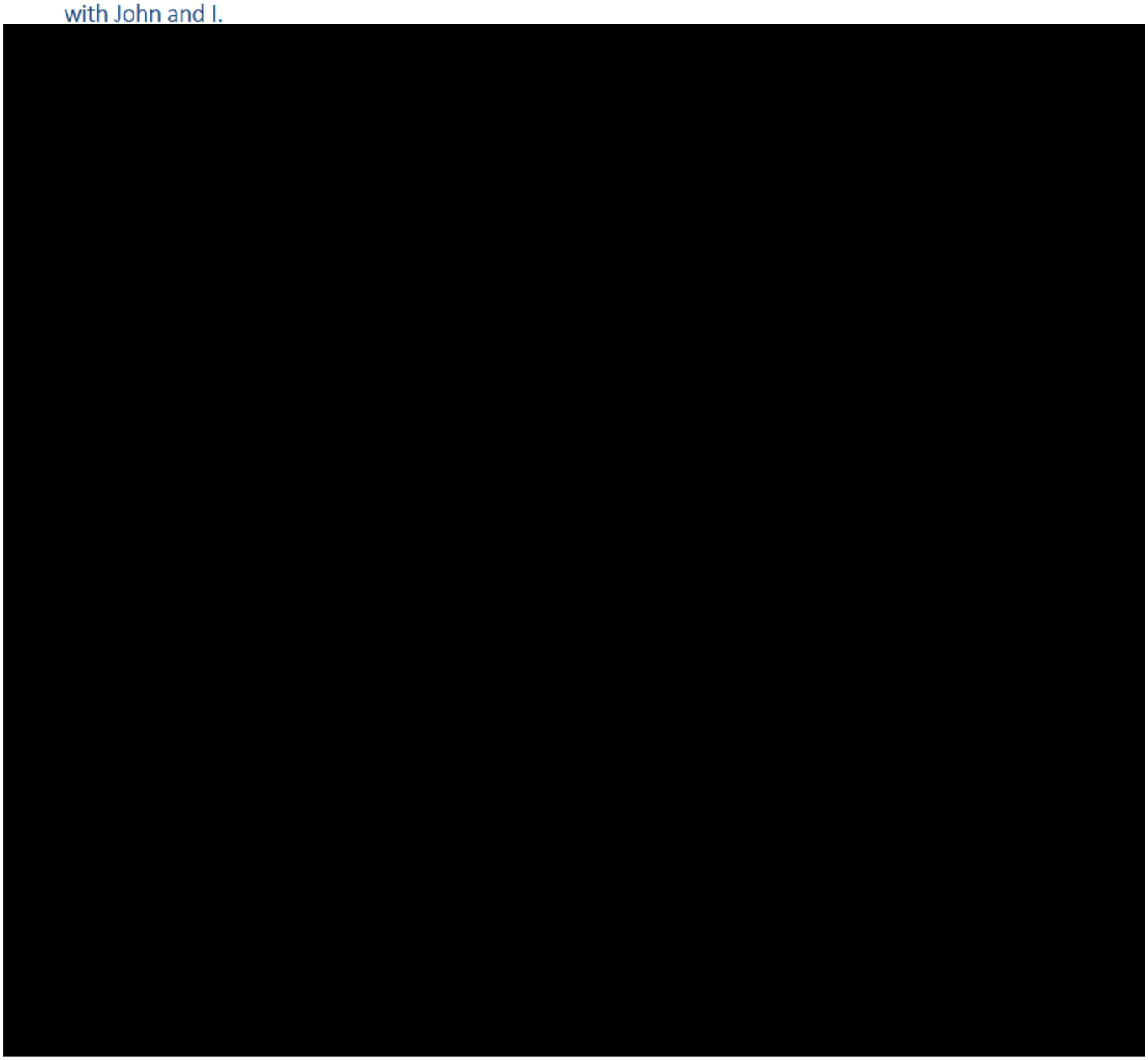
Charlie Braunlich, CREC
cbraunlich@crec.net
cell: 517.410.4941

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

From: Devins, Kenneth
To: Molina-Rios, Carmen
Cc: John Glidden
Subject: ITC Sustainment beyond Task 5

Carmen,

John provided me with the CCAT rationale for forecasting ITC sustainability costs. I have summarized it below.
If additional information is required, please let me know when you are available for a conference call with John and I.



As far as the rigging and installation for the CT X-ray machine, CCAT has that cost covered in the ITC budget assuming it is nothing out of the ordinary. CCAT put the budget together before it was known which pieces of equipment were going to be purchased so the estimate was based on what was known at that time. However, if the equipment comes in after the contract ends, CCAT

will need to find a different way to cover it. It is possible to negotiate rigging and installation as part of the purchase and this would be recommended. Training can also be negotiated as part of the purchase. Sometimes the manufacturer will throw it in as an incentive.

Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 04/05/2017 03:52:30 PM
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>; Helton, Raven M. <rhelton@belcan.com>
Subject: Belcan RADE 2 Task 5 March Invoice and Progress Report
Attachments: 4547_001.pdf RADE Task 5 March 2017 Status Report

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Carmen,

Attached is the Belcan Invoice and associated Progress Report for March.

Please call if there are any questions.

Thanks,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Belcan

INVOICE

INVOICE NO.

2216105

Belcan Engineering Group, LLC
10200 Anderson Way
Cincinnati OH 45242
(513) 891-0972

Invoice Date: 03/26/17

Week Ending 03/26/17

Customer P.O. No. ECDM1-0000013114

Belcan Job#: 3549030

Terms: Net 60 Days

CT DECD (Dept. of Economic & Comm. Dev)
Business & Econcomic Development
505 Hudson Street, 4th Floor
Hartford CT 06106-7106 USA

Prior Invoiced: $29,662.50

Attn.: Michelle Richmond

P.O. Limit: $148,500.00

RADE 2- Task 5

STOCK COMMERCIAL

Technical Contact: Rios-Molina, Carmen

ITEM	TYPE	UNITS	RATE	AMOUNT
Offsite Manufacturing Engineer	Straight Time	1.00	75.00	75.00
Technology Project Manager	Straight Time	105.00	75.00	7,875.00

PLEASE REMIT TO:
Belcan Engineering Group, LLC
Lockbox 771430
1430 Solutions Center
Chicago IL 60677-1004

PLEASE REMIT THIS AMOUNT-> $ 7,950.00
IN U.S. DOLLARS THANK YOU

ORIGINAL

From: Devins, Kenneth
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc
Subject: RADE Task 5 March 2017 Status Report
Attachments: Supplier Status CCAT 3-26-17.xlsx
Supplier Status Draper 3-26-17 (Draper Update) (5).xlsx

Carmen,

As requested a summary of RADE Task 5 activity for March is listed below:

1) On March 15th an extension to the Belcan contract thru 9/30/17 was approved by DECD as part of an extension to the overall OEA effort.

2) Thru March the GOM ATOS has accumulated 905 hours on activities including informal demonstrations to visitors and formal demonstrations to 14 companies resulting in 1 complete project, 2 projects completed at the ITC awaiting supplier conclusions and 3 active projects .

3) A summary of GOM ATOS projects at the CCAT/ITC is attached. Paul Murphy of Mallory Industries advised Belcan that he has proposed using Blue Light inspection to his customer as a preferred inspection technique. A demonstration at the ITC for Paul and his customer are being planned.

4) Draper projects with supplier participation are listed below. To date Draper is actively working 11 projects with 4 suppliers with 1 additional project submitted to DECD for approval.

Deburring House – Closed; additional project submitted to DECD for approval.

Habco – Closed; 3 projects complete

GKN – 0 projects in progress / 3 projects complete / 3 Total. Final reports and recommendations are still in the process of being released internally, so projects are technically not yet 'complete'

Jonal – 0 projects in progress / 4 project complete / 4 Total. Final reports and recommendations are still in the process of being released internally, so projects are technically not yet 'complete'

Flanagan, Admill and Avalon projects moved to inactive status.

Flanagan - Currently working with Flanagan to determine best approach forward, including whether new NDA's need to be signed through EDAC. After several outreach attempts earlier this year, Draper never received a new NDA. Status updated to 'Inactive'.

Admill & Avalon – Following Draper's attempt to confirm, pending verification from DECD on confirmation of interest; Draper has not received any further confirmation. Draper had never received confirmation from these companies that they were interested in participating. Status updated to 'Inactive'.

CAM and Polar will not be participating.

CAM - Did not wish to sign the letter of intent or NDA; updating to status to

withdrawn or inactive.

Polar –Withdrawn and stated they do not wish to participate.

Regards,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]	ITC & Supplier Complete	CCAT	[redacted]
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)		Active	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)		Active	CCAT	
Phoenix Manufacturing		Structured Light Scanning (SLS)		Active	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)		Investigating	CCAT	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)		Investigating	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)		Investigating	CCAT	
Alpha Q		Structured Light Scanning (SLS)		Investigating	CCAT	
Polamer		Structured Light Scanning (SLS)		Investigating	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)		Investigating	CCAT	
Vista International Soundstik		Structured Light Scanning (SLS)		Investigating	CCAT	
Aerospace Alloys		Structured Light Scanning (SLS)		Not interested	CCAT	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)		Not interested	CCAT	
Barnes Aerospace		Structured Light Scanning (SLS)		Not interested	CCAT	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Deburring House Inc.	Stephen Cyr - Quality Mgr	Equipment Recommendation and Engineering Services	[redacted]	Completed	Draper	[redacted]
GKN Aerospace	Martin Thorden - President,	Process Improvement, Equipment Recommendation and Engineering Services	[redacted]	Implemented	Draper	[redacted]
Habco Industries	Brian Montanari President & CEO	Process Improvement and Equipment Recommendation	[redacted]	Completed	Draper	[redacted]
Jonal Laboratories, Inc.	Marc Nemeth - President	Process Improvement and Equipment Recommendation	[redacted]	Implemented	Draper	[redacted]
Admill Machine	Al Parlow	Process Improvement	[redacted]	~~Investigating~~ Inactive	Draper	[redacted]
Avalon Advanced Technologies & Repair Inc.	Vino Franklin - President, Jeffrey Kelly Quality Mgr	Process Improvement	[redacted]	~~Investigating~~ Inactive	Draper	[redacted]

CAM Group LLC		Equipment Recommendation	[redacted]	~~Investigating~~ Inactive	Draper	[redacted]
Flanagan Industries (EDAC)	DECD to define	Equipment Recommendation		~~Investigating~~ Inactive	Draper	
Polar Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mgr			Withdrawn	Draper	

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	09/25/2017 10:35:43 AM
To:	Molina-Rios, Carmen
Cc:	Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	Belcan RADE Task 5 Final Report
Attachments:	Final Belcan DECD RADE Task 5 Project Status Report 9-25-17.doc

Carmen,

As we approach the 9/30/17 contract end date, I have attached a final report summarizing Belcan activity in support of Task 5. Please review and comment.

Thanks,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Note: Withheld pursuant to CGS § 1-210(b)(1)

9 - Pages

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 05/10/2017 11:47:19 AM
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>; Helton, Raven M. <rhelton@belcan.com>
Subject: Belcan Task 5 April 2017 Monthly Progress Report and Invoice
Attachments: 4-30-17 Invoice 0054_001.pdf RADE Task 5 April 2017 Status Report

---

Carmen,

For your files I have attached the April Progress Report and Invoice.
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Belcan

INVOICE

INVOICE NO.

2227148

Belcan Engineering Group, LLC
10200 Anderson Way
Cincinnati OH 45242
(513) 891-0972

Invoice Date: 04/30/17

Week Ending **04/30/17**

Customer P.O. No. ECDM1-0000013114

Belcan Job#: 3549030

Terms: Net 60 Days

CT DECD (Dept. of Economic & Comm. Dev)
Business & Econcomic Development
505 Hudson Street, 4th Floor
Hartford CT 06106-7106 USA

Prior Invoiced: $37,612.50

Attn.: Michelle Richmond

P.O. Limit: $148,500.00

RADE 2- Task 5

STOCK COMMERCIAL

Technical Contact: Rios-Molina, Carmen

ITEM	TYPE	UNITS	RATE	AMOUNT
Technology Project Manager	Straight Time	80.00	75.00	6,000.00

PLEASE REMIT TO:
Belcan Engineering Group, LLC
Lockbox 771430
1430 Solutions Center
Chicago IL 60677-1004

PLEASE REMIT THIS AMOUNT-> $ 6,000.00
IN U.S. DOLLARS THANK YOU

ORIGINAL

Note: Withheld pursuant to CGS § 1-210(b)(5)(B)

From: Devins, Kenneth
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc
Subject: RADE Task 5 April 2017 Status Report
Attachments: NSI Equipment Timeline Milestones and Schedule.msg
CCAT. X5000. NSI Letter 4-17-17.pdf
Supplier Status CCAT 4-30-17.xlsx
Supplier Status Draper 4-30-17.xlsx

Carmen,

As requested a summary of RADE Task 5 activity for April is listed below:

1) Thru April the GOM ATOS has accumulated 1150 hours on activities including informal demonstrations to visitors and formal demonstrations.
2) Mallory Industries is continuing their effort to get their customer (Woodward) to accept Blue Light as an approved inspection methodology for quality acceptance.
3) CCAT/ITC has been in contact with 19 suppliers resulting in 6 active projects and 8 potential projects. Five suppliers have determined that the Blue Light technology is not applicable to their products at this time. A summary of GOM ATOS supplier projects at the CCAT/ITC is attached.
4) Draper is not planning to solicit additional suppliers beyond the current 4. Work continues to complete 13 projects with Habco, Deburring House, GKN and Jonal, and there is one potential additional project at Deburring House. Specific applications are as follows:



5) At Belcan's request Draper provided suggestions to improve the execution of future Task 5 type grant activities:

a) Provide budget flexibility to Draper based on their assessment of potential benefits, do not specify budget limits for each supplier or project.

b) Initial outreach to suppliers should be from DECD/Belcan, not Draper, to allay fears of a hidden agenda from Draper.

6) Belcan participated in the final training session with CCAT and Capture 3D on the GOM ATOS on 4/20/17.
7) Belcan provided a letter from NSI to DECD verifying their adherence to 'sole source' criteria defined by DECD in support of the X5000 X-Ray Scanner acquisition purchase order (See Attachment).
8) Belcan with input from NSI and CCAT submitted a tentative schedule for delivery, installation and certification of the proposed NSI X5000 X-Ray scanner assuming a 5/15/17 purchase order approval (See Attachment).

Regards,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

NORTH STAR IMAGING, INC.
An ITW Company

19875 S. Diamond Lake Rd.
Suite 10
Rogers, MN 55374 U.S.A.

Tel: (763) 463-5650
Fax: (763) 463-5651
Toll Free: (800) 635-8392

www.4nsi.com

To: Carmen Molina-Rios
State of Connecticut, Department of Economic Development
505 Hudson Street,
Hartford, CT 06106.

North Star Imaging X5000 Computed Tomography System

North Star Imaging (NSI) manufactures, sells and services state-of-the-art X-ray Imaging systems and CT equipment for industrial use. Our company also designs and develops the software applications used in our systems. NSI provides system solutions from low production or R&D, to high resolution/high production/high energy. NSI is an ISO 9001:2008 certified company.

North Star Imaging is the sole distributor for CT Systems in the United States (Connecticut)

The NSI X5000 225Kv DR.CT System being proposed to Connecticut Center for Advanced Technology is listed at Discount of $449,867.29. This System would retail for $590,000 to the public. NSI is providing a $140,132.71 educational discount.

Details of System Provided by North Star Imaging:

X5000 Seven Axis Manipulator
Movement of the inspection object is limited to x, z, tilt and rotation, along with detector and tube vertical movement.
Some of the other features of the X5000:
· All drives are motorized with variable speed joystick operation
· Tethered desktop control console
· Detector Manipulator:
o Focal Distance: 0” to 48" (0cm to 122cm)
o Detector and Tube Vertical Axis – 48” (122cm)
· Part Manipulator:
o X Axis / front to back translation: 33” (84cm)
o Z Axis / focal distance tube to detector translation: 48" (122cm)
o Tilt: +20 /-20 Degrees,
o CT precision nickel plated 9" rotational stage - 360 Degrees Continuous. Resolution 0.001 degree
· 250lb (113kg) static capacity (not including tilt)
· Integrated electronics
· Aluminum tool plate construction – black anodized
· Precision linear bearing rail
**Exact measurements may vary slightly at time or order based on x-ray source, detector, optional component selection, or revision*

Microfocus 225kV Directional
· Tube Voltage …25 - 225kV
· mA Range …0-3 mA
· Power …320 W max
· Focal Spot Size < 6 microns

NORTH STAR IMAGING, INC.
An ITW Company

19875 S. Diamond Lake Rd.
Suite 10
Rogers, MN 55374 U.S.A.

Tel: (763) 463-5650
Fax: (763) 463-5651
Toll Free: (800) 635-8392

www.4nsi.com

· Detail Recognition …< 2 microns
· 10-Meter-High Tension Cable
· Closed Loop Water Cooler

Varian Paxscan 2520DX
· 8" x 10" (203mm x 254mm) image area
· Premium CT Grade (best quality)
· Cesium Scintillator (best contrast)
· 127 micron pixel pitch. 1536x1920 pixels (approx. 3 Megapixels)
· 16 bit resolution
· 30 fps (2x2 pixel binning) image acquisition; 12.5 fps at full resolution
· Tungsten shielded to 225kV (increased lifetime)

efX Detector Qualification Software License
The efX Process Control Software is an interface that allows the user to routinely monitor digital detectors. Specifically, this module allows for the qualification of pixel mapping and the verification of the detector quality, spatial resolution, and contrast sensitivity. Also, included in this module is a SMPTE test pattern used for checking the quality of the display monitor.
To include the following:
· Pixel Mapping Qualification
· Detector Quality Check
· Spatial Resolution
· Contrast Sensitivity Check
· SMPTE Display Test Pattern

<u>efX-DR Software</u>
X-View *efX-DR* is a high-performance image analysis system with a comprehensive set of image analysis tools.
· *Windows*® based (Compatible with Windows 7 or higher)
· Multiple Windows interface
· High performance image processing and measurement functions utilizing GPU technology
· Automatic parallelization for systems with multiple CPU's and GPU's
· Live Imaging up to 30 frames per second
· Live Averaging, Live Histogram, Live line Profile, Live Rotation between portrait and landscape modes
· Live Measurements with 1 pixel resolution
· Live image gain/offset calibration and defective pixel correction
· Automatic creation of Technique sheet for operator record
· Capture video into AVI files.
· Supports digital flat panel detectors, LDA's and digital/analog cameras at 8, 10, 12 and 16 bits.
· Read and store images in TIFF 32 bit / 16 bit / 8 bit, BMP, JPEG, RAW
· Seamless integration with *efX-CT* software

<u>efX-CT FULL Computed Tomography Software</u>
efX-CT is a powerful CT software that includes CT calibration, Cone-Beam reconstruction, 3D real time visualization and analysis tools in the same interface.

NORTH STAR IMAGING, INC.
An ITW Company

19875 S. Diamond Lake Rd.
Suite 10
Rogers, MN 55374 U.S.A.

Tel: (763) 463-5650
Fax: (763) 463-5651
Toll Free: (800) 635-8392

www.4nsi.com

· Easy CT - A 5-steps user-friendly process from the creation of the project to the final results. Easy CT guides the user through the calibration and reconstruction process thanks to an interactive interface and automatic processes.
· AdvancedCT - The user – at anytime – can switch to the advanced mode that gives access to the full set parameters for CT reconstruction.
· Automatic Calibration - This tool has been developed to optimize cone-beam CT reconstruction process and to simplify CT and µCT equipment.
· Cone Beam Reconstruction – Fastest reconstruction times on the market. Reconstruction performed on GPU hardware.
· 3D Volume Rendering – Real time volume rendering. Export slices at any angle, create movie animations, performed localized reconstruction and more.
· 3D Surface Module - Surface extraction to CAD compatible format: Export to STL (Stereolithography), cloud points, OBJ, DXF, WRL, PLY. Visualization in wireframe mode. Map textures with reflection.

Digital Radiography & Intro to CT Training (40 hour course) (One Seat) NSI will provide (1) seats to the 40 hour ASTM/ASNT Certified DR/CT training course, held in Rogers, MN. This course follows the recommended curriculum of FWG-IDR, MAI, ASTM and ASME in a format for compliance with NAS 410 and SNT-TC-1A type Qualification/Certification programs. For more info visit: http://4nsi.com/training

NSI Advanced CT Training (40 Hour course) (One Seat)
NSI will provide one (1) seat to the 40 Hour Advanced CT Class held in Rogers, MN This unique course includes CT Technique Development training, CT Reconstruction and Post Processing training, hands on in the CT lab with access to a wide variety of CT and microCT systems. For more info visit: http://4nsi.com/training

Warranty / 1st Year (1 Visit) - Open Tube

1st Year efX-DR and efX-CT Software Updates

Shipping: Included

X5000 Crating for Shipment

Thank You

Jason Dimon
North East Technical Sales Manager | North Star Imaging
19875 S. Diamond Lake Rd
Rogers, MN 55374
Phone#: 763-200-3432
f. 763-463-5651| jdimon@4nsi.com | www.4nsi.com

NORTH STAR IMAGING, INC.
An ITW Company

Note: Withheld pursuant to CGS § 1-210(b)(5)(B)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]	ITC & Supplier Complete	CCAT	[redacted]
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)		Active	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)		Active	CCAT	
Phoenix Manufacturing		Structured Light Scanning (SLS)		Active	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)		Investigating	CCAT	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)		Investigating	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)		Investigating	CCAT	
Alpha Q		Structured Light Scanning (SLS)		Investigating	CCAT	
Polamer		Structured Light Scanning (SLS)		Investigating	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)		Investigating	CCAT	

Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT
Vista International Soundstik		Structured Light Scanning (SLS)		Investigating	CCAT
Aerospace Alloys		Structured Light Scanning (SLS)		Not interested	CCAT
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)		Not interested	CCAT
Barnes Aerospace		Structured Light Scanning (SLS)		Not interested	CCAT
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT

Note: Withheld pursuant to CGS § 1-210(b)(5)(B)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Deburring House Inc.	Stephen Cyr - Quality Mgr	Equipment Recommendation and Engineering Services	[redacted]	Completed	Draper	[redacted]
GKN Aerospace	Martin Thorden - President,	Process Improvement, Equipment Recommendation and Engineering Services	[redacted]	Implemented	Draper	[redacted]
Habco Industries	Brian Montanari President & CEO	Process Improvement and Equipment Recommendation	[redacted]	Completed	Draper	[redacted]
Jonal Laboratories, Inc.	Marc Nemeth - President	Process Improvement and Equipment Recommendation	[redacted]	Implemented	Draper	[redacted]
Admill Machine	Al Parlow	Process Improvement	[redacted]	~~Investigating~~ Inactive	Draper	[redacted]
Avalon Advanced Technologies & Repair Inc.	Vino Franklin - President, Jeffrey Kelly - Quality Mgr	Process Improvement	[redacted]	~~Investigating~~ Inactive	Draper	[redacted]

CAM Group LLC		Equipment Recommendation	[redacted]	~~Investigating~~ Inactive	Draper	[redacted]
Flanagan Industries (EDAC)	DECD to define	Equipment Recommendation		~~Investigating~~ Inactive	Draper	
Polar Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mgr			Withdrawn	Draper	

From: Devins, Kenneth
To: Molina-Rios, Carmen
Subject: NSI Equipment Timeline, Milestones and Schedule

Carmen,

Below I have provided estimated times for delivery, set-up and commissioning based on discussions with CCAT and NSI.

Once the Purchase Order is approved NSI can deliver the X5000 Scanner within 10 to 12 weeks. An additional 4 weeks is allocated for installation, training and commissioning for the equipment.

CCAT can have the site prepared within 8 weeks of the Purchase Order approval.

Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

	Timeline, Milestones and Schedule	**Responsible Party**
Date	**Activity**	
12/15/2016	*DECD receive quote for NSI X-Ray Imaging Systems and Equipment*	*NSI*
12/31/2016	*DECD negotiations completed*	*DECD*
5/15/2017	*Purchase Order to be submitted by DECD*	*DECD*
7/10/2017	**Complete ITC room preparations to install equipment**	**CCAT**
8/7/2017	**NSI equipment delivered to DECD at the ITC in East Hartford**	**NSI**
8/11/2017	**Complete rigging equipment from loading dock to final location, hook up to power**	**CCAT**
	Complete set-up, installation,	**NSI**

8/25/2017	**testing**	
9/4/2017	**NSI equipment machine commissioned and Acceptance Test completed**	**NSI**

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This email has been scanned for email related threats and delivered safely by Mimecast.
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From: Wayne Sumple <wsumple@ccat.us>
Sent time: 11/29/2016 10:55:13 AM
To: Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>; Molina-Rios, Carmen
Cc: Don Balducci <dbalducci@ccat.us>; Nasir Mannan <nmannan@ccat.us>; John Quitter <jquitter@ccat.us>; John Glidden <jglidden@ccat.us>; Elinor Hargreaves <ehargreaves@ccat.us>
Subject: Capture 3D Outstanding Issues

Carmen/Ken,

Status of GOM ATOS installation issues: Capture 3D payment should be withheld until all these are cleared up.

1. Photogrammetric Reference Frames don't fit – *problem has been fixed*
2. Glass window gasket damaged – *open, attempt to fix 11/30*
3. Training still needs to be done – *second day scheduled for 12/7*
4. *(New)* Relocate computer control system – *11/30*
5. *(New)* Install VMR for the 560 reference frame – *11/30*

Wayne

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 23, 2016 9:31 AM
To: Wayne Sumple; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: RE: ITC Procedures and Guidelines

Hi Wayne,

Thank you. I will take a look at them and get back to you with feedback. Also, has all the issue with repair of the equipment been resolved?

Thanks,

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, November 22, 2016 4:32 PM
To: Molina-Rios, Carmen; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: ITC Procedures and Guidelines

Carmen/Ken,

Here is the ITC Procedures and Guidelines document that CCAT will be following.

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

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From: Wayne Sumple <wsumple@ccat.us>
Sent time: 12/09/2016 08:55:48 AM
To: Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>; Molina-Rios, Carmen
Cc: Don Balducci <dbalducci@ccat.us>; John Quitter <jquitter@ccat.us>
Subject: Capture 3D Outstanding Issues

Carmen/Ken - latest update -

1. Photogrammetric Reference Frames don't fit – *complete*
2. Glass window gasket damaged – *complete*
3. Training still needs to be done – *2nd day of training complete, 3rd day scheduled in January after CCAT has time to play with system.*
4. Relocate computer control system – *complete*
5. Install VMR for the 560 reference frame – *complete*

I am ok with DECD paying Capture 3D for the GOM ATOS scanner and scanbox. No need to wait for 3rd day of "future" training.

From: Wayne Sumple
Sent: Thursday, December 01, 2016 10:23 AM
To: 'Molina-Rios, Carmen'
Cc: 'Ken Devins - Belcan (kdevins@belcan.com)'; Don Balducci; John Quitter
Subject: RE: Capture 3D Outstanding Issues

Carmen/Ken - latest update -

1. Photogrammetric Reference Frames don't fit – *problem has been fixed*
2. Glass window gasket damaged – *fixed*
3. Training still needs to be done – *second day scheduled for 12/7*
4. Relocate computer control system – *cables not long enough, scheduled to be fixed on 12/2*
5. Install VMR for the 560 reference frame – *done*

Ken – give me a call…

From: Wayne Sumple
Sent: Tuesday, November 29, 2016 11:08 AM
To: 'Molina-Rios, Carmen'
Cc: Ken Devins - Belcan (kdevins@belcan.com)
Subject: RE: Capture 3D Outstanding Issues

Will do.

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, November 29, 2016 11:00 AM
To: Wayne Sumple; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves; Richmond, Michele; Fernandez, Barbara
Subject: RE: Capture 3D Outstanding Issues

Hi Wayne and Ken,

Based on the update, it looks like all items should be resolved and completed by December 7th. Please let me know on December 8th; if all is cleared up and its okay to pay.

Thank you.

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, November 29, 2016 10:55 AM
To: Molina-Rios, Carmen; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: Capture 3D Outstanding Issues

Carmen/Ken,

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2. Glass window gasket damaged – *open, attempt to fix 11/30*
3. Training still needs to be done – *second day scheduled for 12/7*
4. *(New)* Relocate computer control system – *11/30*
5. *(New)* Install VMR for the 560 reference frame – *11/30*

Wayne

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 23, 2016 9:31 AM
To: Wayne Sumple; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: RE: ITC Procedures and Guidelines

Hi Wayne,

Thank you. I will take a look at them and get back to you with feedback. Also, has all the issue with repair of the equipment been resolved?

Thanks,

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, November 22, 2016 4:32 PM
To: Molina-Rios, Carmen; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: ITC Procedures and Guidelines

Carmen/Ken,

Here is the ITC Procedures and Guidelines document that CCAT will be following.

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

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From:	Don Balducci <dbalducci@ccat.us>
Sent time:	10/21/2016 11:50:23 AM
To:	Molina-Rios, Carmen
Cc:	Wayne Sumple <wsumple@ccat.us>
Subject:	Capture 3D-Gom Atos

Carmen,
Wayne is out today and I wanted to look at the PO for this unit. Would it be possible to see the PO for this unit? If so who can I contact? I'm primarily looking to see the T&C's for what Capture 3D is responsible for (setup, moving/rigging in etc.).
Thanks,
Don

Don Balducci
Director, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc
409 Silver Lane
East Hartford, CT 06118
dbalducci@ccat.us
www.ccat.us

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Note: Attachment withheld pursuant to CGS § 1-210(b)(1)

From: ckatona@crec.net
Sent time: 07/18/2017 02:11:05 PM
To: Molina-Rios, Carmen
Cc: kpoole@crec.net
Subject: CREC Interim evaluation report on CT RADE
Attachments: CT RADE Draft Final Report 060417.docx

Carmen;

We have been communicating a lot about the New England meetings, thanks for all your input.

On another note, I wanted to follow up on our work for CT and the evaluation of the state's OEA funded activities. The contract was extended until the end of September in order to provide more time for activities under Task 5 to be completed (the work with Draper, Belcan and CCAT/ITC). Now that September is approaching, I wanted to talk about how to close out the evaluation.

I think the first step for us is to get your input on the attached DRAFT report that Ken sent you in June (attached). In the report we evaluate all of the tasks, with the idea that we would reevaluate Task 5 towards the end of the engagement. As such, while the attached report serves as the interim report, it also serves as the basis of the final report in which we would update completed activities under Task 5. I have sent it to you as a word document so that you can add any comments to the text easily.

So, our question is, would you be available to spend some time together after the Devens meeting to get your feedback on the report, or would you rather that I set up a call for us and I could also invite Marty.

Let me know how you would like to proceed.

Thanks,
Cathy

Cathy Katona
Director, Economic Development Services

CREC CENTER FOR REGIONAL ECONOMIC COMPETITIVENESS

Center for Regional Economic Competitiveness
PO Box 100127 | Arlington, VA 22210
Phone: 703.522.4980 x1043 | Fax: 480.393.5098
CREC.net | @CREC.org
:: Our network includes: C2ER | LMI Institute | APDU ::

From: kpoole@crec.net
Sent: Sunday, June 4, 2017 11:29 AM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: ckatona@crec.net; mromitti@crec.net; Erik Pages <epages@entreworks.net>
Subject: Interim evaluation report draft
Importance: High

Carmen,
I wanted to share a draft of the interim evaluation report for the RADE project. This document incorporates all the data collection, interviews, and other work that we have completed to date. Of course, more needs to be done for the final version to be issued in September. This draft also includes some preliminary observations and recommendations. Keep in mind that the document is both a draft and a preliminary assessment, but it provides a sense of where the report is going.

We'd like to get your feedback – both on the substance and the style of the report. We want to make sure the final evaluation report meets your expectations. In addition, we'd like your thoughts about whether the tone of the document is constructive and identifies all the key accomplishments as well as areas for improvement. We would also like your feedback on any items that we may have misinterpreted or misstated. In other words, are we missing anything or getting anything wrong? Also are our observations and recommendations offered in a way that the reader will perceive as constructive?

Sorry for the delay in getting this document to you, but we opted to wait to finalize this draft after the May 24 Economic Development Executives' meeting (New England caucus in Milwaukee) to make sure that we were on firm ground with our observations and preliminary recommendations.

Once we get your feedback, we can make further edits and share with other stakeholders and OEA as appropriate.

Thanks for taking the time to review.

Best regards,
Ken

--
Kenneth E. Poole, Ph.D.
President/CEO
CREC CENTER FOR REGIONAL ECONOMIC COMPETITIVENESS
Center for Regional Economic Competitiveness
PO Box 100127 Arlington, VA 22210
Phone: 703.522.4980 x 1016 Fax: 480.393.5098
CREC.net | @CRECorg
:: Our network includes: C2ER | LMI Institute | APDU ::

Note: Withheld pursuant to CGS § 1-210(b)(1)

49 - Pages

From:	Molina-Rios, Carmen
Sent time:	09/28/2017 04:58:50 PM
To:	Devins, Kenneth <kdevins@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Cc:	Fernandez, Barbara
Subject:	DECD Belcan PSA Scope of Work Final Report
Attachments:	Belcan Final Report.xlsx Belcan Final Status Report.docx

Ken,

Please confirm that the attached documentation is accurate and will be considered Belcan's final report to DECD. Upon your confirmation, approval by your quality control process and formal submission of the documentation, final invoice with a cover letter; we will process your invoice for payment.

Thank you,

Carmen

Carmen Molina-Rios
Office of Business Development
Department of Economic and Community Development
450 Columbus Blvd., Hartford, CT 06106
P: 860.500.2314 | E: Carmen.Molinarios@ct.gov

Connecticut
still revolutionary

RADE 2 Task 5

PSA Number: 16ECD0005PS (2017 24850)
Contractor Name: Belcan Engineering Group, LLC.
Contract Period: 09/15/16 to 09/301/17
Contract Amount: $148,500

Scope of Work				Comment
#	Activity	Met	Not Met	
1	Provide dedicated resource to act as a project manager	X		
2	Assist DECD in managing DOD OEA RADE 2 Task 5 - the State of CT Innovation Technology Center	X		
3	Work with DECD, CCAT and Draper Labs in the implementation of a detailed project plan which includes milestones, resources budget and equipment	X		
4	Work with Technology Advisory (Draper Labs) to identify and implement technological breakthroughs leading to improved competitiveness		X	This task was performed through the work of Draper Labs and Belcan services were not needed.
5	Provide technical coordination for DECD by oversight, milestone, reporting, and coordination of the F35 under task 5	X		
6	Supplement resources with technical team who has experience with military and commercial platforms for the CT aerospace supply chain		X	The supplement resources were not needed.
7	Engage OEM's who have CT suppliers on the F35	x		
8	Create a sustainability plan for the State of CT Innovation Technology Center	x		
9	Monitor CCAT and Draper Labs activities to ensure that the deliverables, tasks, and milestones outlined in RADE 2 proposal are met	X		
10	Provide quarterly reports to DECD on the status of CCAT's and Draper's deliverables	x		
11	Collect data from Draper and CCAT and report on the individual projects with specific business needs, market conditions, and technological advancements to meet strategic objectives and grant mission requirements	x		
12	Develop and implement a marketing plan for the Innovation Technology Center	x		
13	Making frequent presentations to industry, government leaders (state/Federal) and stakeholders	x		Performed in conjunction with CCAT & Draper
14	Maintaining frequent formal and informal communications with customers, technology experts and partners to present status of projects and reporting on program progress to industry leaders, clients, government official and federal agencies and;	x		
15	Perform other related activities as requested by DECD	x		
Deliverables				
	Provide DECD with reports detailing technology advancement in closing supporting technical data resulting from the assistance and project.	x		This was part of the weekly and monthly status reports
	Marketing Plan for the ITC surrounding advancements achieved during the program	x		
	Sustainability plan for the ITC	x		
	Monthly reports, including but not limited to project implementation statuspipeline with prospects, status, and next step for each prospect.	x		



Final Status

Task 5 – Manufacturing Innovation			
Increase CT Companies' cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest			
to the Ct supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.			
Sub Tasks:			
5.1 Hire technical coordinator	Complete 11/15/16		Belcan
5.2 Acquire and/or lease machinery, equipment	Complete 11/15/16		CCAT
5.3 Installation of machinery and equipment	Complete 11/15/16		CCAT
5.4 Perform outreach to supply chain	Initial survey 1/31/16, follow-up ongoing		DECD / Belcan
5.5 Identify training needs	GOM ATOS Complete 11/15/16		CCAT
5.6 Deliver training (if/when appropriate)	Complete 12/7/16		CCAT
5.7 Process Improvement project implementation	TBD		Belcan /CCAT /Draper
5.8 Analyze/report on manufacturing innovation	Preliminary scheduled for 7/20/17		Draper
Deliverable:			
• CT Innovation Technology Center is established, operational, and staffed	Complete 12/15/16		CCAT
• Suppliers are aware of ITC and its capabilities	Initial survey 1/31/16, follow-up ongoing		DECD / Belcan
• Participating companies' staff trained on new processes and technologies	1/11/2017		Draper / CCAT
• Reporting on the effectiveness and best practices of manufacturing	Ongoing		Belcan /CCAT /Draper
innovation methodologies & technologies at participating companies			
• Manufacturing Technology Innovation Needs Statement	Computed Tomography		Belcan /CCAT
Metrics:			
• A minimum of 20 supply chain companies participate	23	Structured Light and X-ray	Draper - 4, CCAT - 19
• A minimum of 10 projects implemented	17	Structured Light	Draper 13, CCAT 4
• Available hours used on the equipment by suppliers	1700		CCAT
• Number of projects	28		Belcan /CCAT /Draper
• Equipment manhours hours used	3035	2630 SLS and 405 X-ray	CCAT
• Equipment ordered by suppliers		See Draper reports	Draper
• Number of processes implementing by supplier in their facility		See Draper reports	Draper

Please note, results in terms of supplier participation and projects implemented exceeded requirements with 23 suppliers participating and 17 projects implemented vs a requirement of 20 suppliers and 10 projects.

Sustainability Plan

DECD requested that an investigation be performed into possible approaches that could assure the ability to sustain the ITC support function upon completion of Task 5. In response to this request CCAT

provided Belcan with a proposed rationale for forecasting ITC sustainability costs which are summarized below.



Marketing Plan

In order to promote the ITC capabilities and its synergy with CCAT a marketing brochure was prepared and distributed widely to Connecticut suppliers working DOD projects. This was followed up with conference calls with interested suppliers. The original effort applied only to Structured Light Scanning (SLS) using the GOM ATOS equipment. Future Marketing brochures will include the recently acquired NSI X5000 X-Ray scanner as well.

The original SLS brochure content is shown below for reference.

Innovation Technology Center (ITC)

The State of Connecticut is looking for Connecticut defense manufacturers who want to evaluate if Structured Light Scanning (SLS) technology works for them. CT manufacturers can have a Demonstration Project performed at the newly constructed ITC. The ITC is sponsored by the Department of Defense Office of Economic Adjustment and the Connecticut Department of Economic and Community Development. The ITC is 1000 ft^2 of lab space managed by the Connecticut Center for Advanced Technology Inc. (CCAT) in East Hartford. There is no cost to participate.

WHAT IS A DEMONSTRATION PROJECT? A demonstration project will allow CT manufacturers to evaluate structured light scanning technology against technologies (CMM or manual inspections) they are currently using. This will be done by using new technology on real parts and comparing results to what suppliers currently are achieving. A Structured Light Scanning Demonstration Project will allow suppliers to have one of their own manufactured parts scanned using the structured, blue light scanner available at the ITC:

The GOM ATOS Scanbox 5108 is an optical 3D measuring machine developed for quality control in larger production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. (GOM Website)

CCAT personnel will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so that results from the new technology can be compared directly to results from the current technology being used by the supplier.

WHY DO AN SLS DEMONSTRATION PROJECT AT THE ITC?

Mechanical measuring machines capture data in a point-based or linear manner while optical 3D coordinate measuring systems provide full-field deviations of 3D actual coordinates and CAD data

- The GOM ATOS machine is one example of optical scanning technology
- Compare new technology capabilities to current technology capabilities
- Evaluate impact on effectiveness, efficiency and productivity of new technology
- A Demonstration Project is FREE to CT defense manufacturers
- A Non-Disclosure Agreement (NDA) can be executed to protect the manufacturer's process knowledge. CCAT is an ITAR controlled facility.

HOW DO I APPLY? Complete the simple on-line application by going to the ITC Assistance Application and checking the box for "Structured light scanning/reverse engineering", or contact Mr. Wayne Sumple at CCAT or Mr. Ken Devins at Belcan.

Company demonstration projects that followed the process outlined below provided DECD with supporting technical data resulting from the assistance and project which Belcan reporting in the status reports.

DEMONSTRATION PROJECT PROCESS

1. CT manufacturer to sign Non-Disclosure Agreement (NDA)
2. CT manufacturer to sign Export Control Intake Certification (ECIC)
3. CT manufacturer to complete Assistance Application for Structured Light Scanning

a. Describe part(s) to be scanned
   - I. Name of part
   - II. # of parts
   - III. Special handling instructions

b. STRUCTURED LIGHT SCANNING (SLS)
   - I. Identify data to be gathered during demonstration project
     - I. Time to process
     - II. Cost to process material consumed during process
     - III. Metrology criteria – list of specific measurements or dimensional values required for evaluation
     - IV. Comparison of new measurements or dimensional values generated in the ITC to existing data taken by the SME at their facility
     - V. Shipping/receiving instructions

c. Provide format for report data

d. Identify how part(s) will be delivered to/from ITC
   - I. Supplier to hand carry to ITC
   - II. Supplier to ship to ITC

Participating Suppliers at CCAT / ITC

Ct Tool (Whitcraft, LLC)	[redacted]	Investigating	CCAT	[redacted]
EDAC		Investigating	CCAT	
Alpha Q		Investigating	CCAT	
Polamer		Investigating	CCAT	
Birken Manufacturing		Investigating	CCAT	
Reno Machine Company, Inc.		Investigating	CCAT	
Vista International Soundstik		Investigating	CCAT	
Aerospace Alloys		Not interested	CCAT	
Barnes Aerospace		Not interested	CCAT	
Gros-ite (EDAC)		Not interested	CCAT	
Habco Industries		Not interested	CCAT	

Supplier Name	Project Type	Status	Project Lead	Follow Up/Notes
GKN Aerospace	[redacted]	ITC & Supplier Complete	CCAT	[redacted]
Flanagan Industries	[redacted]	ITC Complete - Awaiting supplier conclusions	CCAT	[redacted]
Satellite Tool & Manufacturing	[redacted]	ITC Complete - Awaiting supplier conclusions	CCAT	[redacted]
Mallory Industries	[redacted]	ITC & Supplier Complete	CCAT	[redacted]
New England Airfoil Products	[redacted]	Active	CCAT	[redacted]
Phoenix Manufacturing	[redacted]	Active	CCAT	[redacted]
Hubbel	[redacted]	~~Active~~ Withdrawn	CCAT	[redacted]
Addaero	[redacted]	Active	CCAT	[redacted]
Prospect Machine Products	[redacted]	Active	CCAT	[redacted]
Aero Gear, Inc.	[redacted]	Active	CCAT	[redacted]

Participating Suppliers at Draper

Supplier Name	Project Type	Status	Project Lead	Project Description
Deburring House Inc.	[redacted]	Completed	Draper	[redacted]
GKN Aerospace		Completed	Draper	
Habco Industries		Completed	Draper	
Jonal Laboratories, Inc.		Completed	Draper	
Admill Machine		Inactive	Draper	
Avalon Advanced Technologies & Repair Inc.		Inactive	Draper	
CAM Group LLC		Inactive	Draper	
Flanagan Industries (EDAC)		Inactive	Draper	
Polar Corporation		Withdrawn	Draper	

From:	Wayne Sumple <wsumple@ccat.us>
Sent time:	04/11/2016 09:29:18 AM
To:	Molina-Rios, Carmen
Cc:	Russo, Deborah; Don Balducci <dbalducci@ccat.us>; Gutierrez, Beatriz
Subject:	DECD Equipment Purchase - Task 5

Hello Carmen,
Where are we with purchasing the GOM Atos Triple Scan equipment for the ITC? Do we have a delivery date? I have someone here at the AMC somewhat familiar with the equipment and he said we might need to purchase various frames and lenses as accessories.
Maybe a quick call between DECD, PW, Draper and CCAT is in order?
Wayne

From: Don Balducci
Sent: Wednesday, March 16, 2016 9:24 AM
To: Wayne Sumple; Mirek Popielarczyk; John Quitter
Cc: Jeff Crandall
Subject: FW: DECD Equipment Purchase - Task 5

FYI,
So when we hear we will have the specs and layout in the ITC Room. Will need to check power etc. now that they switched from the Hexagon unit.
Thanks,
Don

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, March 15, 2016 4:41 PM
To: 'Brindley, William J PW'; Gutierrez, Beatriz; Wittstein, Bryan E.; Russo, Deborah; Holbrook, Mayra S; Holmes, Steven M.; DRESCHER, JOSEPH D PW; Tong, Kun PW; Don Balducci
Cc: Tom Maloney; Fernandez, Barbara
Subject: DECD Equipment Purchase - Task 5

Good Afternoon Everyone,

Thank you again for your time this afternoon. It was extremely helpful to have everyone's perspective. As we discussed, Draper Labs will provide DECD with the spec and cost for the GOM Atos Triple Scan equipment. Once we receive that I will be sure to send out an email to the group to confirm that we heard you right and we are all on the same page prior to DECD acquiring the equipment.

Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860.270.8234
Fax: 860.707.1809
Email: Carmen.Molinarios@ct.gov

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From:	Molina-Rios, Carmen
Sent time:	03/18/2016 03:17:55 PM
To:	Brindley, William J PW <William.Brindley@pw.utc.com>; Tong, Kun PW <Kun.Tong@pw.utc.com>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>
Cc:	Gutierrez, Beatriz; Russo, Deborah
Subject:	DECD Equipment Purchase - Task 5
Attachments:	GOM Atos Triple Scan Recommendation.pptx

Good Afternoon Everyone,

Please see attached the spec for the ATOS Triple Scan 16M. Please confirm for us that this is the system utilized by PW as the Blue Light production system that has been qualified.

Thank you again for your time and helping us understand they equipment/technology better.

Regards,

Carmen

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, March 15, 2016 4:41 PM
To: 'Brindley, William J PW' <William.Brindley@pw.utc.com>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Wittstein, Bryan E. <bwittstein@draper.com>; Russo, Deborah <Deborah.Russo@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov>; Holmes, Steven M. <sholmes@draper.com>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>; Tong, Kun PW <Kun.Tong@pw.utc.com>; 'Don Balducci' <dbalducci@ccat.us>
Cc: 'Tom Maloney' <tmaloney@ccat.us>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Subject: DECD Equipment Purchase - Task 5

Good Afternoon Everyone,

Thank you again for your time this afternoon. It was extremely helpful to have everyone's perspective. As we discussed, Draper Labs will provide DECD with the spec and cost for the GOM Atos Triple Scan equipment. Once we receive that I will be sure to send out an email to the group to confirm that we heard you right and we are all on the same page prior to DECD acquiring the equipment.

Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860.270.8234
Fax: 860.707.1809
Email: Carmen.Molinarios@ct.gov

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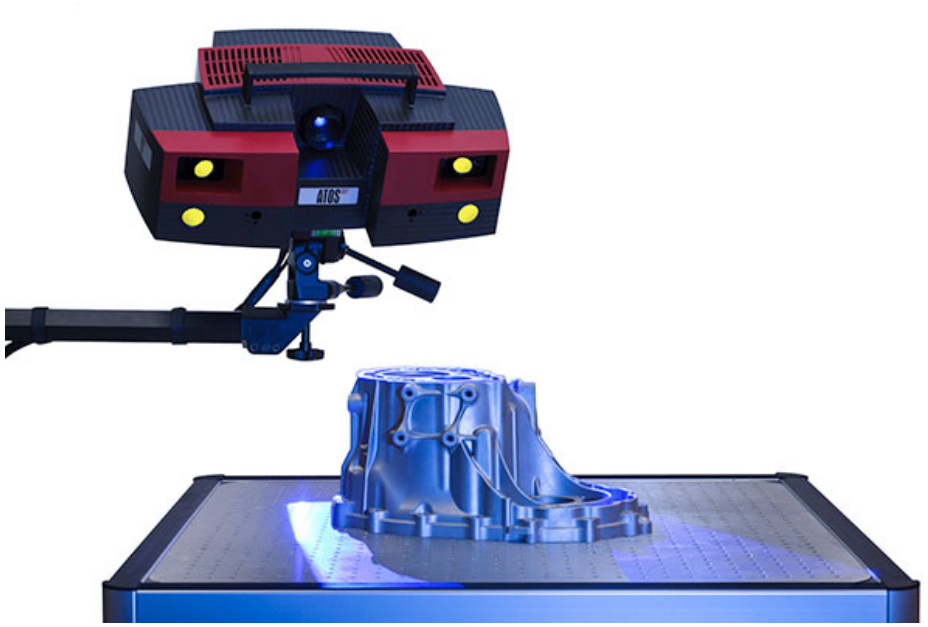
DRAPER

Recommendation for Blue Light 3D Mapping System

GOM Atos Triple Scan 16M



Field of View	(170mm x 130mm) - (810mm x 610mm)
Depth of Field	440mm - 800mm
Point Cloud Spacing	.03mm - .16mm
Point Cloud Accuracy	.0127 mm - .02 mm
Convert to STL	yes
Exposure Time	.5 s - 6 s
Mounting	Tripod/Industrial Robot
Weight	12.7 kg
Software	ATOS Professional
Operating Environment	5 - 40 °C
D&B Supplier Eval. Risk Rating	2
Price	$200k
Comments	Optional GOM Touch Probe for individual point measurements.



- High accuracy system with the option of using GOM Touch probe for individual point measurement
  - This can be used to measure inclusions that can't be mapped with structured light
- Consistent with existing qualified measurement systems for key aerospace manufacturers

From: Molina-Rios, Carmen

Sent time: 03/15/2016 04:41:05 PM

To: Brindley, William J PW <William.Brindley@pw.utc.com>; Gutierrez, Beatriz; Wittstein, Bryan E. <bwittstein@draper.com>; Russo, Deborah; Holbrook, Mayra S; Holmes, Steven M. <sholmes@draper.com>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>; Tong, Kun PW <Kun.Tong@pw.utc.com>; Don Balducci <dbalducci@ccat.us>

Cc: Tom Maloney <tmaloney@ccat.us>; Fernandez, Barbara

Subject: DECD Equipment Purchase - Task 5

Good Afternoon Everyone,

Thank you again for your time this afternoon. It was extremely helpful to have everyone's perspective. As we discussed, Draper Labs will provide DECD with the spec and cost for the GOM Atos Triple Scan equipment. Once we receive that I will be sure to send out an email to the group to confirm that we heard you right and we are all on the same page prior to DECD acquiring the equipment.

Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios
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From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	09/29/2017 11:54:29 AM
To:	Molina-Rios, Carmen
Cc:	Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	DECD Final Report and Quality Plan
Attachments:	Belcan Task 5 Project Final Report 9-30-17.doc DECD-Belcan Task 5 Project Quality Plan 9-30-17.doc

Carmen,

I have combined the material that you provided into the approved final report and included the Belcan Quality Plan for your review and comment.

Thanks for your input.

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Belcan

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State of CT Rade 2 – Task 5
Project Status Report

09/30/2017







Belcan Project No.: 354-9030
Customer P.O. No.: ECDM1-0000013114
Start Date: 9/15/2016
Due Date: 9/30/2017

Prepared for: Carmen Molina-Rios
State of Connecticut, DECD
505 Hudson Street, Hartford, CT 06106
Phone: 860-270-8234
E-mail: carmen.molinarios@ct.gov

Prepared By: Ken Devins
Belcan Engineering
175 Addison Road, Windsor, Ct 06095
Phone: 860-683-5367
E-mail: kdevins@belcan.com

Belcan Proprietary & Confidential

State of CT Department of Econimic and Commercial Development
RADE 2 – Task 5 Project Status Report

Final Status

Task 5 – Manufacturing Innovation			
Increase CT Companies' cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the Ct supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.			
Sub Tasks:			
5.1 Hire technical coordinator	Complete 11/15/16		Belcan
5.2 Acquire and/or lease machinery, equipment	Complete 11/15/16		CCAT
5.3 Installation of machinery and equipment	Complete 11/15/16		CCAT
5.4 Perform outreach to supply chain	Initial survey 1/31/16, follow-up ongoing		DECD / Belcan
5.5 Identify training needs	GOM ATOS Complete 11/15/16		CCAT
5.6 Deliver training (if/when appropriate)	Complete 12/7/16		CCAT
5.7 Process Improvement project implementation	TBD		Belcan /CCAT /Draper
5.8 Analyze/report on manufacturing innovation	Preliminary scheduled for 7/20/17		Draper
Deliverable:			
• CT Innovation Technology Center is established, operational, and staffed	Complete 12/15/16		CCAT
• Suppliers are aware of ITC and its capabilities	Initial survey 1/31/16, follow-up ongoing		DECD / Belcan
• Participating companies' staff trained on new processes and technologies	1/11/2017		Draper / CCAT
• Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies	Ongoing		Belcan /CCAT /Draper
• Manufacturing Technology Innovation Needs Statement	Computed Tomography		Belcan /CCAT
Metrics:			
• A minimum of 20 supply chain companies participate	23	Structured Light and X-ray	Draper - 4, CCAT - 19
• A minimum of 10 projects implemented	17	Structured Light	Draper 13, CCAT 4
• Available hours used on the equipment by suppliers	1700		CCAT
• Number of projects	28		Belcan /CCAT /Draper
• Equipment manhours hours used	3035	2630 SLS and 405 X-ray	CCAT
• Equipment ordered by suppliers		See Draper reports	Draper
• Number of processes implementing by supplier in their facility		See Draper reports	Draper

Please note, results in terms of supplier participation and projects implemented exceeded requirements with 23 suppliers participating and 17 projects implemented vs a requirement of 20 suppliers and 10

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projects.



Marketing Plan

In order to promote the ITC capabilities and its synergy with CCAT a marketing brochure was prepared and distributed widely to Connecticut suppliers working DOD projects. This was followed up with conference calls with interested suppliers. The original effort applied only to Structured Light Scanning (SLS) using the

GOM ATOS equipment. Future Marketing brochures will include the recently acquired NSI X5000 X-Ray scanner as well.

The original SLS brochure content is shown below for reference.

Innovation Technology Center (ITC)

The State of Connecticut is looking for Connecticut defense manufacturers who want to evaluate if Structured Light Scanning (SLS) technology works for them. CT manufacturers can have a Demonstration Project performed at the newly constructed ITC. The ITC is sponsored by the Department of Defense Office of Economic Adjustment and the Connecticut Department of Economic and Community Development. The ITC is 1000 ft^2 of lab space managed by the Connecticut Center for Advanced Technology Inc. (CCAT) in East Hartford. There is no cost to participate.

WHAT IS A DEMONSTRATION PROJECT? A demonstration project will allow CT manufacturers to evaluate structured light scanning technology against technologies (CMM or manual inspections) they are currently using. This will be done by using new technology on real parts and comparing results to what suppliers currently are achieving. A Structured Light Scanning Demonstration Project will allow suppliers to have one of their own manufactured parts scanned using the structured, blue light scanner available at the ITC:

The GOM ATOS Scanbox 5108 is an optical 3D measuring machine developed for quality control in larger production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. (GOM Website)

CCAT personnel will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so that results from the new technology can be compared directly to results from the current technology being used by the supplier.

WHY DO AN SLS DEMONSTRATION PROJECT AT THE ITC?

Mechanical measuring machines capture data in a point-based or linear manner while optical 3D coordinate measuring systems provide full-field deviations of 3D actual coordinates and CAD data

- The GOM ATOS machine is one example of optical scanning technology
- Compare new technology capabilities to current technology capabilities
- Evaluate impact on effectiveness, efficiency and productivity of new technology
- A Demonstration Project is FREE to CT defense manufacturers
- A Non-Disclosure Agreement (NDA) can be executed to protect the manufacturer's process knowledge. CCAT is an ITAR controlled facility.

HOW DO I APPLY? Complete the simple on-line application by going to the ITC Assistance Application and checking the box for "Structured light scanning/reverse engineering", or contact Mr. Wayne Sumple at CCAT or Mr. Ken Devins at Belcan.

Company demonstration projects that followed the process outlined below provided DECD with supporting technical data resulting from the assistance and project which Belcan reporting in the status reports.

DEMONSTRATION PROJECT PROCESS

1. CT manufacturer to sign Non-Disclosure Agreement (NDA)
2. CT manufacturer to sign Export Control Intake Certification (ECIC)
3. CT manufacturer to complete Assistance Application for Structured Light Scanning

a. Describe part(s) to be scanned
   - I. Name of part
   - II. # of parts
   - III. Special handling instructions

b. STRUCTURED LIGHT SCANNING (SLS)
   - I. Identify data to be gathered during demonstration project
     - I. Time to process
     - II. Cost to process material consumed during process
     - III. Metrology criteria – list of specific measurements or dimensional values required for evaluation
     - IV. Comparison of new measurements or dimensional values generated in the ITC to existing data taken by the SME at their facility
     - V. Shipping/receiving instructions

c. Provide format for report data

d. Identify how part(s) will be delivered to/from ITC
   - I. Supplier to hand carry to ITC
   - II. Supplier to ship to ITC

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Participating Suppliers at CCAT / ITC

Ct Tool (Whitcraft, LLC)	Structured Light Scanning (SLS)	Investigating	CCAT	[redacted]
EDAC	Structured Light Scanning (SLS)	Investigating	CCAT	
Alpha Q	Structured Light Scanning (SLS)	Investigating	CCAT	
Polamer	Structured Light Scanning (SLS)	Investigating	CCAT	
Birken Manufacturing	Structured Light Scanning (SLS)	Investigating	CCAT	
Reno Machine Company, Inc.	Structured Light Scanning (SLS)	Investigating	CCAT	
Vista International Soundstik	Structured Light Scanning (SLS)	Investigating	CCAT	
Aerospace Alloys	Structured Light Scanning (SLS)	Not interested	CCAT	
Barnes Aerospace	Structured Light Scanning (SLS)	Not interested	CCAT	
Gros-ite (EDAC)	Structured Light Scanning (SLS)	Not interested	CCAT	
Habco Industries	Structured Light Scanning (SLS)	Not interested	CCAT	

Supplier Name	Project Type	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Structured Light Scanning (SLS)	ITC & Supplier Complete	CCAT	[redacted]
Flanagan Industries	Structured Light Scanning (SLS)	ITC Complete - Awaiting supplier conclusions	CCAT	
Satellite Tool & Manufacturing	Structured Light Scanning (SLS)	ITC Complete - Awaiting supplier conclusions	CCAT	
Mallory Industries	Structured Light Scanning (SLS)	ITC & Supplier Complete	CCAT	
New England Airfoil Products	Structured Light Scanning (SLS)	Active	CCAT	
Phoenix Manufacturing	Structured Light Scanning (SLS)	Active	CCAT	
Hubbel	Structured Light Scanning (SLS)	~~Active~~ Withdrawn	CCAT	
Addaero	X-Ray	Active	CCAT	
Prospect Machine Products	X-Ray	Active	CCAT	
Aero Gear, Inc.	X-Ray	Active	CCAT	

Participating Suppliers at Draper

Supplier Name	Project Type	Status	Project Lead	Project Description
Deburring House Inc.	Equipment Recommendation and Engineering Services	Completed	Draper	[redacted]
GKN Aerospace	Process Improvement, Equipment Recommendation and Engineering Services	Completed	Draper	
Habco Industries	Process Improvement and Equipment Recommendation	Completed	Draper	
Jonal Laboratories, Inc.	Process Improvement and Equipment Recommendation	Completed	Draper	
Admill Machine	Process Improvement	Inactive	Draper	
Avalon Advanced Technologies & Repair Inc.	Process Improvement	Inactive	Draper	
CAM Group LLC	Equipment Recommendation	Inactive	Draper	
Flanagan Industries (EDAC)	Equipment Recommendation	Inactive	Draper	
Polar Corporation		Withdrawn	Draper	

RADE 2 Task 5				
PSA Number:	16ECD0005PS (2017 24850)			
Contractor Name:	Belcan Engineering Group, LLC.			
Contract Period:	09/15/16 to 09/30/17			
Contract Amount:	$148,500			
Scope of Work				**Comment**
#	**Activity**	**Met**	**Not Met**	
1	Provide dedicated resource to act as a project manager	X		
2	Assist DECD in managing DOD OEA RADE 2 Task 5 - the State of CT Innovation Technology Center	X		
3	Work with DECD, CCAT and Draper Labs in the implementation of a detailed project plan which includes milestones, resources budget and equipment	X		
4	Work with Technology Advisory (Draper Labs) to identify and implement technological breakthroughs leading to improved competitiveness		X	This task was performed through the work of Draper Labs and Belcan services were not needed.
5	Provide technical coordination for DECD by oversight, milestone, reporting, and coordination of the F35 under	X		
6	Supplement resources with technical team who has experience with military and commercial platforms for the CT aerospace supply chain		X	The supplement resources were not needed.
7	Engage OEM's who have CT suppliers on the F35	x		
8	Create a sustainability plan for the State of CT Innovation Technology Center	x		
9	Monitor CCAT and Draper Labs activities to ensure that the deliverables, tasks, and milestones outlined in RADE 2 proposal are met	X		
10	Provide quarterly reports to DECD on the status of CCAT's and Draper's deliverables	x		
11	Collect data from Draper and CCAT and report on the individual projects with specific business needs, market conditions, and technological advancements to meet strategic objectives and grant mission requirements	x		
12	Develop and implement a marketing plan for the Innovation Technology Center	x		
13	Making frequent presentations to industry, government leaders (state/Federal) and stakeholders	x		Performed in conjunction with CCAT & Draper
14	Maintaining frequent formal and informal communications with customers, technology experts and partners to present status of projects and reporting on program progress to industry leaders, clients, government official and federal agencies and;	x		
15	Perform other related activities as requested by DECD	x		
Deliverables				
	Provide DECD with reports detailing technology advancement in closing supporting technical data resulting from the assistance and project.	x		This was part of the weekly and monthly status reports
	Marketing Plan for the ITC surrounding advancements achieved during the program	x		
	Sustainability plan for the ITC	x		
	Monthly reports, including but not limited to project implementation statuspipeline with prospects, status, and next step for each prospect.	x		

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Project Quality Plan

Refer to Project Quality Plan Procedure

Project Title:	State of Ct RADE 2 Task 5 Project Manager	**Project No.:**	354-9030	
Client:	Connecticut Department of Community and Economic Development (DECD)	**Date:**	9/30/17	**Rev:**
Author:	Ken Devins	**Proj. Mgr.:**	Ken Devins	

1. Approach.

A description of the technical approach to this project is presented as indicated below:

X	Belcan Proposal	PO # ECDM1- (Proposal Number)	0000013114
X	Detailed Approach	State of CT DECD Contract (File Name)	(attached) (File Location)

2. Resources.

Belcan Team Members:

Name	*Role*	*Phone*	*E-Mail*
Ken Devins	Prime Contact & Tech Approval	860-683-5367	kdevins@belcan.com
Ryan Watson	Financial Appvl.		rewatson@belcan.com
Jennifer Vesce	PM / Admin	860-683-5481	jdvesce@belcan.com

Client Team Members:

Name	*Role*	*Phone*	*E-Mail*
Carmen Molina-Rios	Prime Contact & Tech Approval	860-270-8234	carmen.molinarios@ct.gov
Adam Osmond	Financial Appvl		

Software:	*List Type*	*Rev. #*
Analytical Programs (ANSYS, PATRAN, etc.)	None	
Design/Drafting Programs (UG, AUTOCAD, etc.)		
Other		

Specification Requirements: *Refer to Proposal and/or Project Directives for this project*.

Other Resources:

3. Schedule. Ref: *Schedule Development Procedure*.

A schedule for this project is presented as indicated below:

☐ Gantt Chart _____ (File Name) _____ (File Location)

☒ Milestones

Milestone Description	Milestone Date
Complete Contract Requirements	9/30/17

☐ Level of Effort (Schedule determined upon customer request to complete a task)

4. Status Reporting. Ref: *Project Status Report Procedure*

Format:

- [X] Belcan Standard
- [ ] Client-Specific _____
- [X] Other

Frequency:

- [X] Weekly
- [ ] Bi-weekly
- [X] Monthly (min. requirement)

5. Deliverable(s):

See Contract – Attachment A				

6. Electronic Data Management Requirements. Ref. *Open Project Document Control and Electronic Data Management for Projects Procedures*.

[X] All Data will be stored on **Belcan's** Network in the project directory.

[ ] Project Management Data stored on the Belcan Network in the project directory and Technical Data stored on the **Customer's** Network.
File path where the data will be stored: _____

7. Nonconformance Handling. Ref. *Project Nonconformance Handling Procedure*.

A nonconformance related to the product Belcan delivers to its customers can surface any time during the course of the project and are typically identified internally through the inspection process or externally by the customer

There are two types of nonconformances:

a) Product Nonconformance – errors that affects form, fit and/or function of the product after product delivery
b) Fundamental Nonconformance - errors or systemic problems found internally prior to delivery of product, such as:

- Repetitive mistakes
- Unqualified personnel
- Repetitive failure to follow directives on the project or direction from technical lead
- Technical flaws in accepted best practices
- Promised resources not available to complete the project

All nonconformances will be documented on the *Project Nonconformance Description and Resolution Form*.

The nonconforming product is marked and segregated per the following guidelines below:

Electronic Files	A copy of the nonconforming file is stored in the project directory within the established nonconformance subdirectory. The file name acts as its unique identifier.
Hard Copy Files	The file is marked with an "NC" written on the front page of the document and is segregated from existing working project files. It must be traceable to the project number.
Physical Product	The product is marked with an "NC" tag (*Physical Product Nonconformance Tag Form*) affixed to the object and segregated by Project Manager's discretion.

8. Contract Deliverable Results

Belcan has performed the function of technology consultant and project manager for DECD supporting DOD OEA RADE Task 5. This work defined in Attachment A of the contract has been successfully completed. Specific tasks and their resolution are as follows:

1) A dedicated resource was assigned by Belcan to act as project manager.
2) The project manager assisted DECD in managing the State of Connecticut Innovation Technology Center (ITC) located on the UTRC campus in the Connecticut Center for Advanced Technology (CCAT) facility.
3) The project manager successfully worked with DECD, CCAT and Draper Labs in executing a project plan accomplishing the Task 5 objectives. Budgets for CCAT and Draper were managed by DECD under separate contracts.
4) The project manager worked with the Technology Advisor (Draper Labs) to identify and implement technological breakthroughs intended to improve competitiveness for Defense manufactures in Connecticut. The project manager participated in supplier visits and 3rd party audits with Draper and CCAT. Separate Draper reports cover details of technology insertion as defined in their contract with DECD.

5) The project manager provided technical coordination for DECD by oversight and monthly reports specifying progress made by Belcan, CCAT and Draper toward successful completion of Task 5 goals focused on the F35 and Department of Defense supply chain in Connecticut.
6) Belcan supplemental resources were not needed to support the technical teams.
7) Pratt & Whitney (the F35 OEM) and DOD suppliers were engaged in projects at the ITC.
8) The project manager worked with CCAT to prepare a sustainability plan for continued utilization of the structured light and x-ray scanners after Task 5 funding is no longer available.
9) The project manager provided monthly progress reports to DECD providing visibility into progress at Belcan, Draper and CCAT toward completion of RADE Task 5 Deliverables, tasks and milestones.
10) Monthly reporting was substituted for quarterly reports to DECD on Belcan, Draper and CCAT deliverables. Initial weekly reports transitioned to monthly reports as the plan execution evolved.
11) The monthly reports included lists of individual suppliers and projects as they developed. By the end of the Belcan contract the goals for number of suppliers participating and projects completed had exceeded the Task 5 requirements.
12) The project manager worked with CCAT to develop a marketing plan which included the electronic distribution of a marketing brochure, personal and phone contact with targeted suppliers encouraging development of projects using the ITC facility.
13) While the project manager was prepared to make presentations to industry, government leaders and stakeholders the opportunity never materialized.
14) The project manager had frequent formal and informal communications with interested suppliers, structured light and x-ray technology experts in expanding the ITC exposure and capabilities.
15) The project manager responded to other DECD requests such as the participation in the 3rd party audit of Task 5 with CREC.
16) Monthly reports from the project manager to DECD were the mechanism for delivering project implementation status, as well as the marketing and sustainability plans for the ITC. The Draper contract calls for a separate sustainability plan which was not provided to Belcan for review.

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 12/15/2016 01:06:09 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: Draper Final Reports for Habco and Deburring House

Carmen,

In discussion with Draper I was informed that the Draper recommendations to suppliers is based on a value criteria that considers cost, customer requirements and hardware/software complexity. In the case of GKN and Flanagan the GOM ATOS scanner is not the best option.

I have asked Draper to provide me with their value criteria. In the interim I would like to see their final reports for Habco and Deburring House to better understand how we can incentivize suppliers to still use the ITC even though they may acquire another type scanner.

Is there any issue blocking availability of these final reports for my review?

Please let me know a good time to call you to discuss this further.

Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

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From:	kpoole@crec.net
Sent time:	09/30/2017 02:16:16 PM
To:	Molina-Rios, Carmen
Cc:	ckatona@crec.net; mromitti@crec.net
Subject:	Final RADE Evaluation Report
Attachments:	CT RADE Final Report 093017.docx CT RADE Final Report 093017.pdf

Carmen,
Please find attached the final evaluation report (in both PDF and Word format). We have included a number of updates from the interim report. Please feel free to provide us with comments and feedback, but much of the substance of this report is consistent with what you saw in earlier drafts.

Thanks and we look forward to our continued collaboration.

Best regards,
Ken

--
Kenneth E. Poole, Ph.D.
President/CEO
CREC CENTER FOR REGIONAL ECONOMIC COMPETITIVENESS
Center for Regional Economic Competitiveness
PO Box 100127 Arlington, VA 22210
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CREC.net | @CRECorg
:: Our network includes: C2ER | LMI Institute | APDU ::

CREC CENTER FOR REGIONAL ECONOMIC COMPETITIVENESS



The New England Regional Aerospace and Defense Cluster Initiative

Project Evaluation Report

September 2017

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Executive Summary

On behalf of the six New England states, the Connecticut Department of Economic and Community Development (DECD) created and supported a New England defense industry cluster initiative, the Regional Aerospace & Defense Exchange (RADE). With funding support from the Office of Economic Adjustment (OEA) Defense Industry Adjustment (DIA) program combined with match funding from the Connecticut Manufacturing Innovation Fund, RADE represents a collaborative effort among the New England states to develop and implement strategic actions to prepare for expected DoD spending cuts to military weapons programs that would affect the New England region.

Under Phase I of OEA funding in 2013, DECD facilitated the formation of RADE as a network in collaboration with partners in three other states (Rhode Island, Massachusetts, and Maine) and began creating initial analytic tools. Under a Phase II grant in 2014, Connecticut again led the effort and expanded the partnership to include Vermont and New Hampshire as well as the other three New England states. The goal of this phase was to institutionalize and operationalize RADE as a network with information resources and sustainable program activities. Specifically, Phase II sought to engage the six states in a more visible role, draft a regional strategic action plan, and develop tools and resources to support the defense industry. DECD partnered with the Connecticut Center for Advanced Technology, Inc. (CCAT) to manage many of the six major tasks. This report represents a third-party evaluation of those efforts.

For this report, the evaluators reformulated the metrics proposed in the initial project application and provided a RADE program logic model that described how the inputs from OEA and the partner states were expected to lead to outcomes associated with enhanced state capacity to support the defense sector as well as impacts on a selected group of companies. The evaluators then collected quantitative and qualitative data from project partners and beneficiaries to assess progress toward anticipated outputs and outcomes.

Key Project Activities and Interim Performance Results

Most activities and deliverables set forth in the original RADE application were completed as described and the activity measures and milestones were achieved as planned. However, the project timeframe was too short to realize many of the desired longer-term outcomes. Even so, project managers made significant progress and set the stage for continued regional collaboration moving forward.

Task 1: Economic Modeling Platform

The deliverables for this task have been met; however, the outcomes of this task have yet to be fully realized because the Platform was envisioned as a sustained product and it is still not yet clear whether that is possible. The Platform remains a beneficial tool for users across the region, the sustainability and maintenance of the software tool remains uncertain without

continued federal support. Ultimately, it appears that sustainability will require a business model that relies on either subscriptions or sponsorships. CCAT has committed to its continued support for an additional year, but it is unclear what the long-term future of the platform will be.

Task 2: Workforce Development Toolkit

Several workforce development tools were uploaded to the RADE website. However, it is still unclear whether the toolkit will retain its relevance in the long term. The toolkits impacts depend on partners using and implementing the tools posted to the site and on partners posting new materials to the site as new lessons are learned. This means that enough partners must recognize that these tools exist, determine that these tools offer an advantage to alternative options, and continue to contribute toward maintaining the tools. Many partners are either unaware of the tools, do not fully appreciate their value, or are not yet completely committed to their use. Additionally, while most elements are in place, the Job Match Process did not appear to be fully functional as yet. If it worked as intended, the Process could provide significant "value-proposition" for the workforce toolkit. In addition, there are still more steps to complete the pilot of the Strategic Workforce Planning program that also would improve the value of the workforce toolkit.

Task 3: RADE Cluster Initiative

The six New England state OEA grantees that constitute the RADE partnership have met several times to discuss the formalizing their relationship, and all six states remain actively engaged in those discussions. While a formal structure has not yet been established, the effort helped to set the stage for the state economic development agency directors to meet, and those leaders have helped to recruit industry champions to maintain momentum after the RADE grant. This process is well underway and is expected to lead to a sustained regional effort.

Task 4: Virtual Industry Commons

The RADE Virtual Commons was established as a web portal to support RADE. The Virtual Commons site serves as a rich clearinghouse of A&D cluster resources. The site has been successful in providing a single location to aggregate project resources. However, the limited site usage means that few resources created by individual states are posted to the site, and it is not regularly updated with new practices, resources, and tools. Once the project expires, unless partners determine that there is value to share their respective activities and resources, resource limitation may mean that the full impact of the Commons might never be realized. Even so, this web portal could ultimately be an important head start in developing relevant resources for the sustained cluster initiative being undertaken as a result of Task 3 efforts.

Task 5: Manufacturing Innovation

The establishment of the Innovation Technology Center (ITC) at CCAT could potentially result in a lasting impact on the region from the OEA grant. The ITC used some OEA resources to

acquire equipment to help defense supply chain companies test the latest technologies as they make product improvements, create new products, or explore ways to diversify their operations. Connecticut has worked to raise awareness of the ITC and the RADE initiative more generally, and this has resulted in stakeholders and companies both within and outside the state taking advantage of the ITC equipment assets. Several companies have taken advantage of the resources although the anticipated jobs and investment impact have not have yet been realized.

Task 6: Outreach

The project sponsored the New England RADE Summit held in November 2016. The meeting managed to achieve attendance goals and provided insights to state partners throughout the region about opportunities in the A&D sector. However, the meeting as a "one-off" event is unlikely to have a significant impact on formalizing the A&D Cluster without further work to continue building the network. A meeting of the six state partners that took place immediately after the Summit generated positive dialogue on planning toward a more sustained regional effort and served as a foundation for future meetings guiding the regional cluster initiative.

Findings and Recommendations

Initial New England RADE efforts (versions 1.0 and 2.0) have helped:

1) Build connections across states to identify and address common issues
2) Aggregate and analyze information about the region's A&D strengths and capacity to diversify
3) Pilot new program approaches and shared the results with partner states
4) Build the core infrastructure and tools needed to maintain current and future collaboration.

These early achievements generated positive momentum and regional interest in continuing the RADE effort, but there are areas for improvement, including **recommended efforts** to:

- Generate public-private consensus on a vision for RADE going forward
- Expand New England defense industry input into RADE's mission and priorities
- Develop a business model for RADE to sustain regional collaboration and strategy implementation
- Address the state-specific issues in maintaining continued support for RADE
- Determine which RADE-supported tools and services should be incorporated into a sustained regional cluster effort
- Develop a more comprehensive and systematic outreach strategy for RADE and its available tools and services

Introduction

Past budget cuts and changes in defense procurement priorities mean that New England defense contractors have been vulnerable to a downsizing defense sector that has left many contractors and their workers at risk. The Department of Defense (DoD) needs these companies to be resilient to respond in case of future defense build-ups or to be the source of emerging new capabilities. The DoD Office of Economic Adjustment (OEA) offers the Defense Industry Adjustment (DIA) program to provide states and regions with technical and grant assistance to prepare for the cancellation or termination of defense contracts, the failure to proceed with an approved major weapon system program, or a planned reduction in DoD spending that adversely affects local firms.[1]

With these resources, Connecticut implemented an aerospace and defense (A&D) support initiative designed to help New England firms to adapt to changing DoD procurement levels. The project, the Regional Aerospace and Defense Exchange (RADE), sought to implement a series of tasks designed to engage and grow the defense sector across New England. Each of the other New England states had individual grants from OEA, but RADE focused on a multi-state effort to address common concerns (See Appendix 1 for details about the state efforts.)

The RADE project includes six key tasks; one task, supporting manufacturing innovation, was Connecticut-focused (Task 5). A seventh task included an evaluation component. The purpose of this report is to summarize the results of the work completed in the other six tasks.

The report begins by providing an overview of RADE, a discussion of the anticipated outcomes and the rationale for how the work program would help achieve those outcomes, as well as a task-by-task review of the resources and efforts undertaken. The report concludes with an overview of key findings and recommendations for moving forward.

Genesis for the Initiative

Defense policy and spending trends are affecting New England in very real and significant ways. Defense-dependent business cutbacks in the region motivated the State of Connecticut to apply for OEA funding on behalf of the six-state New England region.[2] Prior research demonstrates that the defense industry was a major contributor to the New England-wide economy and individually in each of its six states. In 2011, for instance, New England businesses received $34 billion in DoD and Department of Homeland Security (DHS) contracts,

[1] U.S. Department of Defense, Office of Economic Adjustment, DIA Eligibility and Requirements

[2] Consensus view expressed in stakeholder interviews conducted within Connecticut and across the region. The region includes the states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

which supported more than 319,000 jobs.[3] New England had enjoyed an 85% increase in defense contracting between 2003 and 2012, but that growth tapered off and declined due to persistent federal defense budget cuts in key programs relevant to the region through 2016.[4]

New England states typically work independently in pursuit of their own priorities and interests, but many leaders felt that there was a powerful mutual interest in developing a regional mindset to address the potentially serious impacts of defense contract reductions. Defense-focused businesses, workforce, and assets in the region are prolific, and state borders are artificial to industry and workers. For example, General Dynamics Electric Boat (EB) has been the primary builder of submarines for the United States Navy for more than 100 years. The company's main facilities are a shipyard in Groton, Connecticut, a hull-fabrication and outfitting facility in Quonset Point, Rhode Island, and a design and engineering facility in New London, Connecticut. Small and mid-size manufacturers who supply Electric Boat extend throughout the region, and the highly skilled workforce for EB commutes to the facilities from several different states. The continued success of EB, therefore, is in the interest of all of New England.

On behalf of the New England states, Connecticut requested OEA funding to support the development of the New England defense industry cluster. The Regional Aerospace & Defense Exchange project sought to create a regional structure suited to examine and develop strategies to respond to multi-state supply chains for major original equipment manufacturers (OEMs) like EB, Pratt & Whitney, and the region's defense installations.[5] The six tasks of the Phase II RADE application sought resources to provide valuable strategic information and protocols, build a collaborative regional network, strengthen and diversify the defense industry base, and position all the New England states to weather anticipated downturns in defense procurement.

Connecticut had the most experience in working with OEA firms and offered to serve as the applicant for OEA funds. The Town of East Hartford partnered with the Connecticut Center for Advanced Technology (CCAT) for an earlier OEA grant to develop a workforce development model to respond to the proposed cancellation of the F-22 Raptor being built at Pratt & Whitney's East Hartford facility. While the East Hartford project was narrow in scope, RADE provided an organizational for New England states to collaborate in addressing the region's A&D supply chain needs.[6]

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[3] Defense Technology Initiative, The New England Defense Industry: Current Profile and Economic Significance, prepared by University of Massachusetts Donahue Institute, 2012.

[4] Defense Technology Initiative, The New England Defense Industry: Current Profile and Economic Significance, prepared by University of Massachusetts Donahue Institute, 2012.

[5] Regional Aerospace & Defense Exchange: A proposal to the Department of Defense Office of Economic Adjustment (OEA) from the Connecticut Department of Economic and Community Development (DECD).

[6] "Connecticut Awarded Federal Planning Grant to Study How to Strengthen State's Aerospace and Defense Manufacturing Workforce". Press release by Governor Dannel Malloy, January 23, 2014.

A final factor influencing the development of the New England RADE OEA application was a proposed initiative to foster manufacturing innovation in the region (i.e., Task 5 of the work plan). Connecticut added this state-specific activity to the Phase II OEA grant based on its experiences related to a separate effort Investing in Manufacturing Communities Partnership (IMCP) initiative supported by the U.S. Department of Commerce's Economic Development Administration (EDA). The federal IMCP initiative provided EDA and other resources to support assistance to manufacturers and their supply chains.[7] Connecticut's IMCP strategy emphasized efforts to improve the state ecosystem to address market needs as well as innovation, technology and productivity for the state's aerospace and shipbuilding industries.

To this end, Connecticut invested $25 million to create the Manufacturing Innovation Fund (MIF). The fund supports projects that help Connecticut manufacturers modernize and innovate. Many of these firms are in the supply chain of some of the country's largest defense and aerospace companies.[8] MIF funds were used to leverage OEA funding for RADE, particularly in supporting relevant manufacturing innovation activities. Using these resources, CCAT helped to establish the Connecticut Innovation Technology Center (ITC) "to address the needs of defense manufacturers to retain and gain competitive advantages through their existing market or the ability to diversity into commercial markets via process innovations and technologies."[9]

In sum, the overarching intention and desired long-term outcome from RADE is to recognize and support a New England-wide defense cluster. All the tasks, except Task 5 (manufacturing innovation) emphasize a New England-wide service area. Together, the activities are meant to generate the following outcomes:

(1) A formalized Aerospace & Defense Cluster in New England

(2) A clearinghouse of A&D Cluster resources

(3) Increased state capacity and knowledge

(4) Increased staff capacity to support A&D throughout the region

Articulating the Project Logic Model

To understand the mix of activities being implemented, RADE began with clearly articulated goals: (1) to understand and address the challenges facing A&D companies in New England

[7] U.S. Department of Commerce, Economic Development Administration, Fact Sheet: The Investing In Manufacturing Communities Partnership. Posted April 17, 2013

[8] Noted in Connecticut's RADE application

[9] As stated in Connecticut's RADE application

and (2) to develop the organizational infrastructure needed to support a thriving regional defense industry collaboration. At the regional and state level, the initiative seeks to:

A. Develop an effective cluster initiative partnership responsive to partners' shared priorities and expectations.

B. Establish a formal organizational structure led by a neutral third-party capable of conducting the work of the cluster initiative effectively and efficiently.

C. Develop and disseminate products and services valued by the A&D cluster initiative's partners/customers.

D. Develop resources/funding to sustain the regional A&D cluster initiative on a continuing basis going forward.

E. Expand participation in these collective efforts to address shared regional priorities.

These objectives provide the rationale for how **inputs** are applied to support specific **activities** designed to achieve **outputs** designed to **enhance local capacity** to realize measurable **outcomes** that ultimately contribute to the overall goal of creating a strong A&D economy. Combined, these elements form a "**logic model**"[10] for what is being undertaken through RADE and what is expected as a result. For RADE, the research team created a logic model to provide a linkage between expected outcomes and the resources and steps required to achieve those outcomes.

Inputs refer to the resources or infrastructure available to support the project. This portion of the logic model lays out all the raw materials, funding sources, human capital, or anything else that will be needed, or is available, to undertake the project. The inputs for the RADE Initiative are: grantee staff time and resources, OEA and state of Connecticut funding, and OEA technical assistance. OEA funding was scheduled to terminate in September 2017 so the inputs are expected to end at that point; however, they may continue beyond this deadline. For instance, CCAT has indicated that they plan to maintain the RADE Industry Commons for another 12 months, at the organization's expense. However, past that, a more sustainable financial model/cost-share arrangement would need to be implemented.

Activities are interventions described as executable tasks tied to the project. Once accomplished, these tasks translate the project inputs into the anticipated outputs. "Activities" reflect how the project leaders opt to use available resources. The activities in the RADE Initiative logic model represent a summary of the tasks, subtasks, metrics, and deliverables outlined by the Connecticut Department of Economic and Community Development (DECD)

[10] A logic model helps to organize the many tasks, activities, metrics and deliverables into an easily-identifiable framework for change: providing a visual link between inputs and the necessary flow of activities required to achieve desired results.

through its initial grant application in 2013 (Phase I) and follow up grant application in 2014 (Phase II) as well as feedback from partners participating.

Key project activities for this Phase II grant included: (1) development of a 'supply chain portal,' a web-based, graphical, interactive platform that enables New England policymakers to analyze and assess the region's dependency on DoD spending; (2) initiation of the RADE Cluster, a network of partners in the six states (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) established to develop a policy consensus in order to maintain and grow the A&D industry in the region; (3) development of the Virtual Industrial Commons, an online forum unique to the industry designed to share information, facilitate discussions, address policy, and represent a collective voice for the sector; (4) creation of the Workforce Toolkit, a collection of resources that provide best practices and model programs in workforce development that respond to challenges and changes driven by the sector; (5) a manufacturing innovation initiative, providing access to specialized equipment and technology assessments for individual companies; and (6) a New England RADE Summit (held in November 2016) that featured a discussion of critical issues, demonstrations of the economic modeling platform, and debut of the virtual industry commons web portal (https://www.rade-commons.org).

Outputs result directly from the activities implemented. These data reflect measurable results from the specific activities undertaken. In many cases, these measures may tie directly to milestones associated with the activities being implemented. For instance, output indicators may include metrics such as "completion and approval of RADE strategic plan", or "50% increase in platform usage from year one to two". The two-phased RADE project applications identified several dozen metrics - each associated with specific grant activities to be performed.

Enhanced capabilities address the specific changes in the on-going behaviors of supporting organizations that result, either directly or indirectly, from project activities. Often, these organizations may not have had the capabilities to support the A&D industry before the RADE intervention. These enhanced capabilities are explicitly identified as expected results from the tasks as defined.

Anticipated outcomes (aka "impacts") are the high level fundamental improvements or changes that Connecticut and its New England partners are seeking to achieve. These outcomes are not typically expected immediately, but instead, they are anticipated to occur over time (often many months or even years) following project completion. The anticipated outcomes are essentially the endgame that policymakers have set out to achieve from the intervention, but they often occur well after the evaluation period has occurred. As for the RADE Initiative, the anticipated outcomes include a formalized A&D cluster in New England, a clearinghouse of related cluster resources, increased state capacity and knowledge, and an increase in staff capacity.

Measuring progress is essential. While early investments may not result in immediate job creation or new opportunities for businesses, monitoring their progress through a logical

process helps determine whether investments that may not have been directly tied to an anticipated outcome will help New England states move in a desired direction. Continued assessment and review of the project using a customized logic model provides not only a way to ensure progress but also a way to improve the project design throughout the project's development.

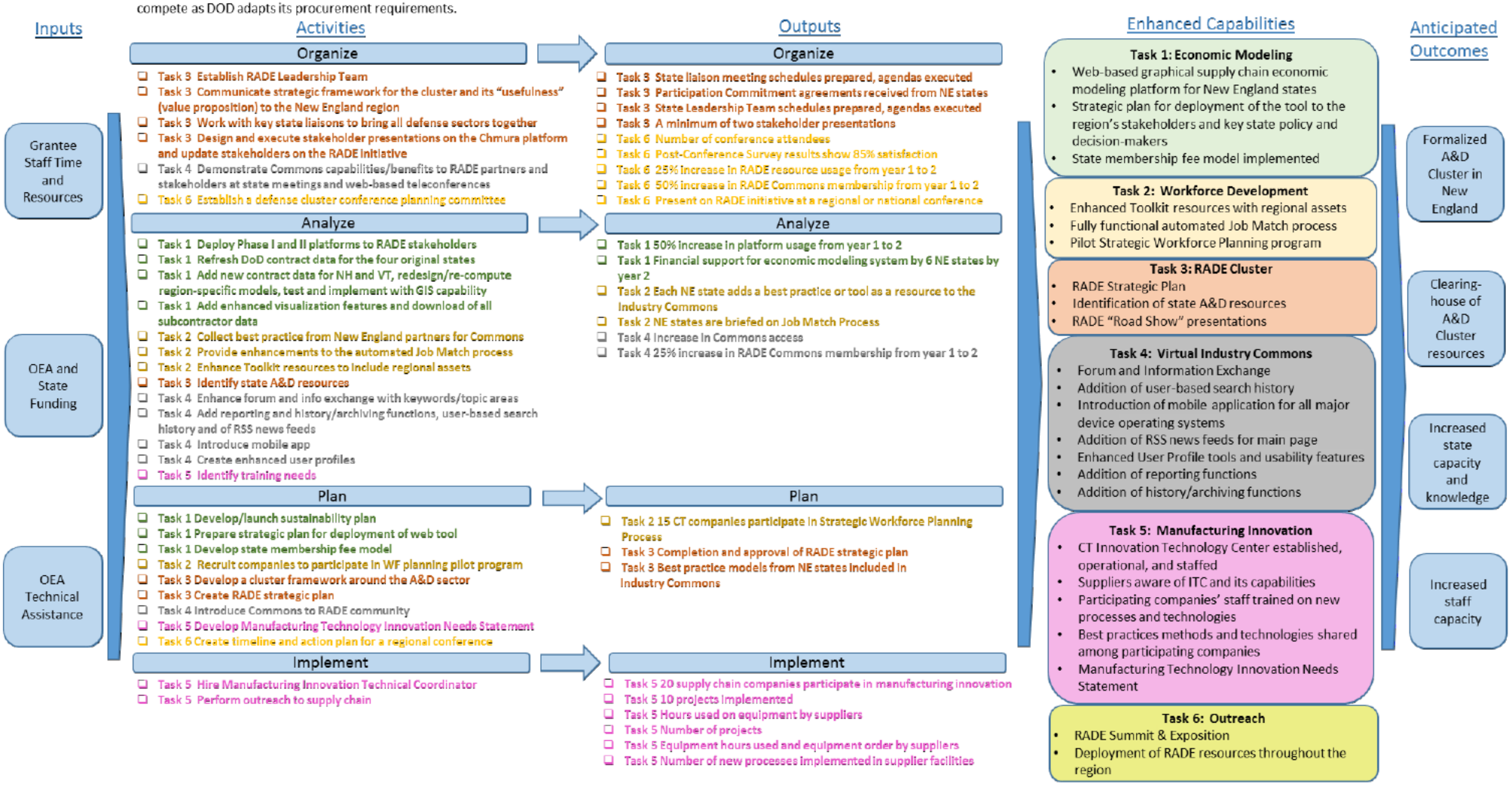
Complementary to the RADE Initiative project logic model is the OEA DIA program logic model. Under that model, OEA supports activities designed to organize, analyze, plan, and implement strategies to support the defense industry. Thus, the "activities" and "outputs" from RADE initiative might be considered within this framework. For instance, Task 2 (the RADE cluster network), 3 (the Virtual Industrial Commons), 4 (the Workforce Toolkit), and 6 (the New England RADE Summit) all tie to the "organize" element of the OEA framework. Task 1 (Supply Chain Portal) ties to the "analyze" element. Task 5 ties to the "implement" element of the OEA logic model.[11]

A visual representation of the RADE logic model, integrated with the OEA DIA model, is mapped out in "Figure 1, Visualization of the Regional Aerospace and Defense Cluster Initiative Logic Model." This model reflects the project activities categorized according to the OEA organize-analyze-plan-implement model associated with their relevant indicators.

[11] While the focus for a task may fit a component of OEA's organize, analyze, plan, and implement framework more directly than others, various elements of the overall task activities may cross framework components.

Figure 1: Visualization of the Regional Aerospace and Defense Cluster Initiative Logic Model

Situational Analysis: New England vendors received nearly $34 billion in Department of Defense (DoD) and Department of Homeland Security (DHS) contracts, supporting a payroll of more than $22.6 billion and more than 319,000 jobs (2011). With no formalized structure or tools available to support the New England defense industry, collaborative state actions were needed to ensure New England firms can continue to compete as DOD adapts its procurement requirements.



Approach and Methodology in Evaluating the Initiative

The evaluation team assessed progress associated with each of the key RADE OEA tasks by revisiting the proposed metrics and deliverables included in the initial application for funding, reviewing performance reports submitted to OEA during the life of the grant, and validating those reports through interviews with RADE stakeholders and client companies.

In person and phone interviews were held with DECD as the grantee, CCAT as the primary contractor to carrying out the grant activities, other New England state OEA program directors, and other contractors and client companies. Questions were customized for each set of interviewees; DECD, CCAT or partners.

Data collected from this process are organized within this report using the logic model presented in Figure 1. This evaluation captures data gathered through September 2017 on activities, outputs, enhanced capabilities and anticipated outcomes.

Review of the Project Tasks

The following sections will review each of the six major project tasks. The task description will identify the reason it was included, the resources available to implement the task and key activities undertaken. The outputs from these tasks follow; reflecting measures identified in the initial proposal to OEA. In addition, the discussion examines how the task helped to enhance the region's capacity to support the defense sector, and anticipated future outcomes – tied to RADE's overall goals. Each section then concludes with a summation of key lessons learned from the work on that task, including the biggest accomplishments and biggest challenges.

Task 1: Economic Modeling Platform

Task Overview and Rationale

The defense industry is a major contributor to the New England economy, but the characteristics of the industry vary by state. Before the project began, only limited information was known about large prime contractors in each state (OEMs or original equipment manufacturers), while very little information was known about smaller prime contractors and subcontractors. Task 1 provided a mechanism to inform the region's leaders and business people about current defense sector conditions and to identify strengths and gaps in the regional supply chain network.

Because defense manufacturing involves intricate linkages between prime contractors with hundreds of suppliers and subcontractors, it is difficult to capture the full supplier landscape. This challenge is exacerbated by the lack of reporting requirements, which make defense supply chain mapping a complex analytical exercise. The volatility in defense contracting also

makes it difficult for decision makers, policymakers and business leaders to plan strategies to prepare for or leverage changes in defense spending. Given these challenges, Task 1 sought to provide an economic modeling platform to provide insights about regional and sector-specific competitive advantages and gaps.

Resulting from this work, the RADE Economic Modeling Platform, a web-based tool (http://dod-ne.chmuraecon.com/), enables the user to determine the total defense contract spending, the DoD contract dependence and total DoD contract dependent employment for the region, state, county, metro-area or local workforce investment area. For each geographic search, the tool then identifies the current and forecasted DoD spending by product service category, the current DoD spending by industry, the top DoD contract dependent occupations and top contractors for that geographic area. The tool also geographically tracks where subcontracting dollars from OEMs in New England go.

Inputs

On behalf of the RADE project, CCAT contracted with a private economic consulting firm, Chmura Economics & Analytics to conduct the supply chain analysis and build the Economic Modeling Platform to disseminate the information. In this task, the project team conducted a multi-step analysis of available public and proprietary data sources followed by directly contacting likely defense industry subcontractors to learn more about their relationships. Connecticut economic development practitioners provided input about how the tool might be used to identify businesses most impacted by potential decreases in defense procurement to help businesses retool and their workers to retrain.

Activities

Under this task, Chmura gathered data related to workforce development, federal spending, and industry supply chains to analyze trends and forecast impacts of defense spending projections. The data collection on contracts included an analysis of USASpending data in conjunction with a survey of regional businesses that relied on nondisclosure agreements to build trust and gain access to data on individual company defense contracts and subcontractors. CCAT worked closely with Chmura to incorporate feedback from potential users to enhance the usability functions and develop a user-friendly interface for reporting purposes of the website. The results are integrated into the web-based tool that includes supply chain information from the six states that incorporate the RADE region.

Outputs

The metrics for success identified in the RADE application focused on usage of the platform and progress toward achieving sustainability. Following are those benchmarks and how the project has been doing in achieving those objectives:

- *Significant increase (+50%) in usage of platform from Year 1 to Year 2:* **Completed.** There was a 100% increase in the number of registered users after the RADE Summit in November 2016 (from 30 to 60 users). This measure captures the number of people requesting access to the Commons website, not those specifically interested in accessing the Platform. No data are available for usage activity.
- *Commitment for financial support from three New England states by the end of Year 1 and all six by the end of Year 2:* **Not completed.** While no states have committed to maintaining the Platform going forward, CCAT continues to work with Chmura to find ways to reduce the costs of maintaining it. Estimates for full maintenance of the site and updating of the data going forward were deemed unaffordable without OEA grant funds. Through negotiations, CCAT has been able to reduce those costs, making future updates more affordable and potentially more viable.

Enhanced Capabilities

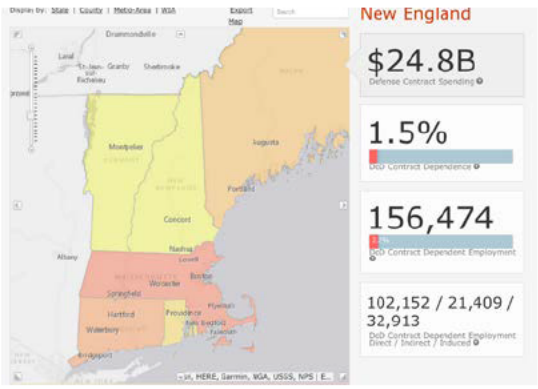
Connecticut DECD and its partners made progress in undertaking these activities in the following ways:

- *Fully functional web-based graphical supply chain economic modeling platform for six New England states: Connecticut, Massachusetts, Rhode Island, Maine, New Hampshire, and Vermont:* **Completed.** RADE has created the web-based graphical representation of the region's supply chain during Phase II. Figure 2 provides samples of some of the data that are available.
- *Strategic plan for deployment of the tool to the region's stakeholders and key state policy and decision-makers, to achieve consensus, demonstrate value, and create sustainability from the cluster:* **Completed.**
- *State membership fee model implemented:* **Designed but not implemented.** A membership model was proposed in the DECD strategic plan with two levels of administrator access and two levels of user access. However, this model was not implemented even though the strategic plan did not define an actual membership fee. The states indicated that they had no discretionary resources for this purpose.

Outcomes: Lasting Impacts

The Platform serves as an A&D cluster resource that could ultimately serve a larger audience as well as the individual states. However, this potential has not been fully realized. User interest in the Platform was originally intended to be generated through the RADE Summit (described later) and no other marketing resources were devoted to promoting the Platform. Without marketing resources, CCAT has not been able to demonstrate the Platform to potential users on a sustained basis, leading to lower than anticipated stakeholder use.

Figure 2: Sample Screen Shots from the Economic Modeling Platform



New England

$24.8B
Defense Contract Spending

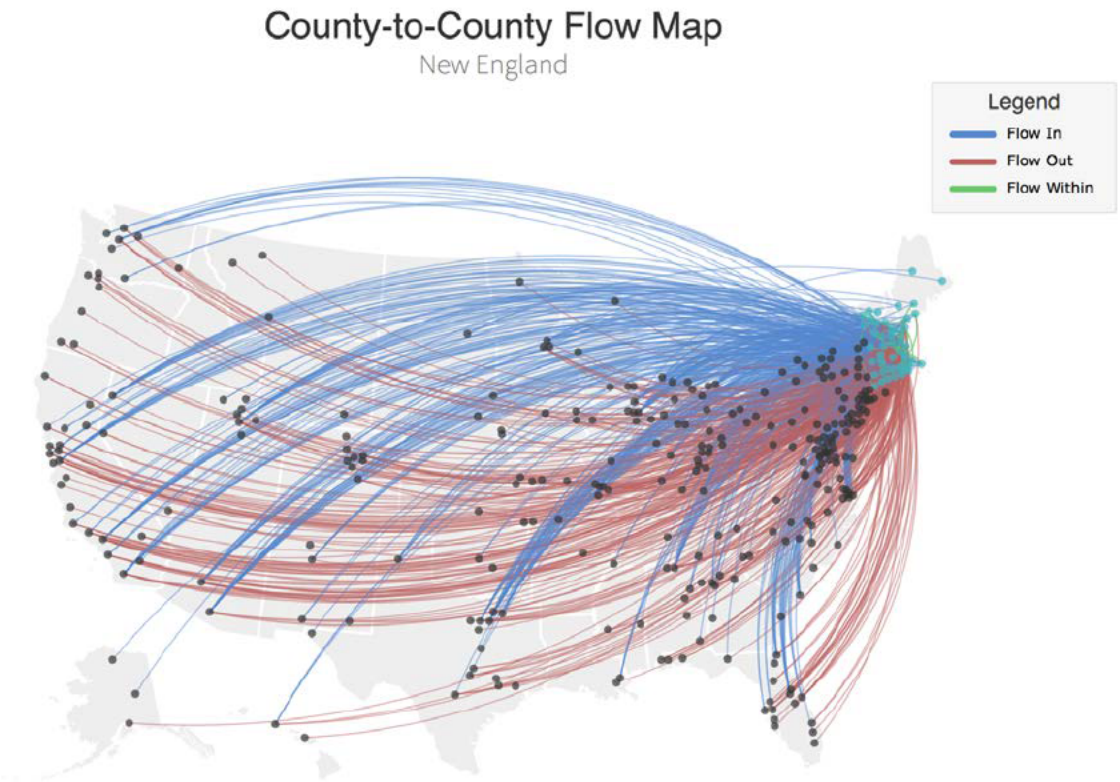
1.5%
DoD Contract Dependence

156,474
DoD Contract Dependent Employment

102,152 / 21,409 / 32,913
DoD Contract Dependent Employment Direct / Indirect / Induced

Top DoD Contract Dependent Occupations
New England, Based on Adjusted Data

Rank	Title	Empl	% DoD
1	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	1761	53.9%
2	Layout Workers, Metal and Plastic	689	44.5%
3	Avionics Technicians	328	36.0%
4	Aerospace Engineers	1671	33.8%
5	Aerospace Engineering and Operatons Technicians	241	30.9%
6	Marine Engineers and Naval Architects	138	27.8%
7	Aircraft Mechanics and Service Technicians	1294	27.0%
8	Riggers	194	21.5%
9	Mechanical Drafters	727	19.3%
10	Materials Engineers	254	17.5%
11	Painters, Transportation Equipment	447	15.7%
12	Mechanical Engineers	2332	15.2%



Lessons Learned

Overall, RADE partners have benefited from the tools and data. For example, several states used the supply chain listings to generate contacts for their OEA-funded services and programs. However, RADE Partners from the New England states expressed less enthusiasm than expected to fund the RADE supply chain portal and economic modeling tools going forward. To address the cost issues, CCAT negotiated a lower cost for data refreshes to this platform and has committed to maintaining the platform for a year after the grant period.

Biggest Accomplishments

Several state partners have reported to CCAT that the Economic Modeling Platform has been valuable in the administration of their own OEA grants. CCAT reported that Vermont needed information about defense contractors in the state. After introducing the Platform to Vermont users, CCAT reported that they recognized its utility and have become a supporter.

CCAT received positive feedback on the Platform during its development in Phase I of RADE, demonstrating it at an OEA grantee convening. OEA publicly recognized the Platform as a tool that other states could emulate. CCAT originally thought that economic developers would be the most interested stakeholder group in using the Platform. Yet, small- to mid-sized companies have demonstrated greater-than-expected interest in the Platform, but have not demonstrated a willingness to pay for access.

Biggest Challenges

While businesses frequently request data on regional supply chains related to their industry, they are reluctant to divulge their own data for fear that their competitors will have access to it. A significant challenge in the development of the Platform was receiving quality data on contractors and subcontractors from companies given these concerns.

The Platform is currently a robust web-tool available free to the six states to effectively learn more about the contractual and workforce activity within the defense supply chain. However, once OEA funds no longer financially support the site, alternative funds will need to be secured to update the data. As the data ages without quarterly updates, its usefulness diminishes. Given the costs associated with keeping the Platform relevant, it will be incumbent upon the participating states to determine the next steps for the Platform.

Another challenge was the expectation by users that the supply chain data would be fully comprehensive including detailed information from all companies associated with the supply chain to do more in-depth analyses. This was a misunderstanding that had to be clarified. The purpose of the Platform is to provide modeling capabilities, to analyze trends, make predictions and anticipate future DoD contract opportunities. The Platform was not intended to offer business intelligence about individual firms. In retrospect, CCAT acknowledges that it would have been prudent to better communicate the analytical purpose and capability of the Platform more clearly.

Finally, the Platform's usage was not as widespread as originally intended. Due to the lack of a marketing plan and limited opportunities for outreach efforts, the Platform did not attract a sufficient number of paid users to financially support the site. While the final product is extremely effective for its intended use, CCAT excels as a content expert rather than a marketing expert. CCAT acknowledges that its outreach efforts could have been supplemented with consulting help to guide marketing efforts.

Task 2: Workforce Development Toolkit

Task Overview and Rationale

With procurement cuts for the F-22 fighter, contractors are expected to reduce employment for area workers. Providing support for these impacted workers requires advanced planning, and most defense adjustment strategies need to address these issues in addition to helping businesses adapt. Through the RADE project, CCAT created the Workforce Development Toolkit to help prepare workers and businesses making a transition.

The Workforce Development Toolkit provides information about the workforce talent pipeline, identifies opportunities for hiring and training support, as well as pinpoints opportunities for the investment of public resources. Designed to align with the Economic Modeling Platform, the Toolkit components include a Job Match process and Strategic Workforce Planning program.

The Job Match process provides templates for pre-screening employees through interviews and other assessments. Based on the results, the process then helps intermediary organizations improve their ability to connect workers with employers seeking to fill positions requiring similar or complementary skills (especially related skills that could be easily adapted through short-term training). The tool also identifies transitional resources available to workers and companies impacted by defense contract reductions.

The Strategic Workforce Planning program helps stakeholders prepare for changing contractor talent needs as DoD adapts to new military needs. The program includes a web-based tool targeted to small-to-medium sized defense-related manufacturing companies. The program captures data about small-to-medium company needs, the programs/services available to meet their workforce needs, as well as the relative implementation costs for continued recruitment and training of current and future defense workers.

Inputs

CCAT initially developed the Job Match Process for the state of Connecticut with financial support from the U.S. Department of Labor. During Phase II, OEA funds were used to help institutionalize the Workforce Development Toolkit for all six New England states. To support the workforce planning process, CCAT secured a consultant for the pilot strategic workforce planning program.

Activities

To build out the resources for the toolkit, CCAT collected models of best practices from the six New England states, further enhanced and expanded the Job Match process, and is developing the pilot strategic workforce planning program. The program seeks to provide small-to-medium sized manufacturers with formal processes for adjusting workforce recruitment to accommodate future changes in defense spending. As part of the pilot, CCAT is meeting with companies one-on-one to determine participant company needs.

Outputs

Deliverables anticipated as part of this task include:

- *At least one best practice or workforce-related tool from each of the RADE states is included as a resource on the Industry Commons:* **Completed.** The resources for the Toolkit have been collected and prepared. CCAT has posted all best practice materials and tools from each of the participating states on the Commons website under Workforce Development Tools. The site is searchable by state and by using a "keyword search" feature.
- *A minimum of 15 Connecticut companies will participate in the Strategic Workforce planning process:* **In progress.** This program is specific to the state of Connecticut and while it has not yet been completed, CCAT has identified 20 manufacturers to participate in the pilot and is meeting one-on-one to get company feedback on the program process and plan.

Enhanced Capabilities

- *Each participating RADE state is provided with a briefing and demonstration of the automated Job Match process:* **Partially completed.** Because the Job Match process has not yet been completed, the process has not yet been demonstrated. The implementation plan is to offer the demonstrations on a web-based "Go-to-Meeting" platform to facilitate discussion with the stakeholders.
- *Fully functional automated Job Match process:* **In Progress.** Successfully piloted in Connecticut during Phase I, the Job Match process was expanded to other New England states as part of Phase II. The automated Job Match process is currently in beta testing for New England and will be uploaded following a successful test. An Connecticut enhancement to the Job Match process is also underway – an application for mapping manufacturers to the Connecticut public transportation network so that companies can determine a worker's ability to get to the workplace. The process is intended to improve the ability of manufacturers to identify and secure talent congruent with company workforce needs.
- *Pilot Strategic Workforce Planning program:* **In Progress.** This deliverable is still in the development stages.

Outcomes: Lasting Impacts

The outcomes of the activities and deliverables associated with Task 2 have not yet been realized in part because the Workforce Toolkit has not been publicized to potential users and some components of the task have not yet been completed.

Lessons Learned

While parts of the Workforce Toolkit are functional and provide many resources, there are key aspects that are not yet complete. There have been delays in uploading the Job Match process and implementing the pilot Strategic Workforce Planning program.

Biggest Accomplishments

- **Leverage Previous Efforts:** From the Job Matching process developed for the state of Connecticut in Phase I, CCAT built upon that platform and lessons learned and broadened the ability to match jobs across the region. This afforded CCAT the ability to begin working through ways to lower implementation costs, building upon the original model, and make the Workforce Job Matching process more useful for candidates.
- **Leverage regional workforce collaboration as a RADE priority:** Opportunities abound not only in building the RADE Workforce Toolkit, but also in implementing shared training programs, joint efforts to deal with challenging industry workforce gaps, advocacy about careers in the A&D industry, certifications and credentials focused on manufacturing innovation, and other initiatives across the region.

Biggest Challenges

There were several challenges related to accomplishing the deliverables for the Workforce Development Task.

- **Consensus on Definitions:** In developing useful examples to share across the states, it was difficult to establish a consistent and generally applicable definition for "best practices." CCAT communicated that the challenge lay in the fact that a best practice for one state may not translate into being a best practice for another state.
- **Relevance:** As the project progressed, there were intermittent concerns on whether the resources captured by the toolkit were relevant for the region's current economic and workforce landscape.
- **Institutional knowledge:** Discontinuity in institutional knowledge complicated the progression of project timelines. During the project, some states experienced personnel turnover creating stoppages in workflow and requiring additional time to ensure that in-coming state personnel were well equipped to drive continued state participation. As new staff participated in the process, new relationships had to be built and their perspective on 'best practices' varied.
- **State buy-in:** States were slow to recognize the benefits of the effort, especially related to the Job Match process. Participant states expressed concerns that the Job Match process might be used by employers to poach workers from one state to fill job openings in another state.

Task 3: RADE Cluster Initiative

Task Overview and Rationale

New England is home to some of the nation's largest prime defense contractors. Since the 1940's, DoD aircraft and shipbuilding-related military weapons programs have transformed numerous New England communities into focal points for the future of the U.S. military. The RADE Cluster Initiative engaged businesses and organizations from across the region that differ in size and focus but shared interest in supporting the region's A&D supply chain manufacturing.

Task 3 focused on efforts to establish a sustained New England regional A&D industry cluster. Building from the 2013 Phase I OEA grant, DECD facilitated the formation of RADE. Under Phase II, RADE was institutionalized and operationalized with cooperation from the six participating states. The participants sought to articulate RADE's goals in a strategic plan that outlined how a variety of resources available at the state and regional levels might be shared with one another.

Inputs

CCAT, on behalf of RADE and Connecticut, reached out to the OEA program managers of the five other OEA state grantees in the region to begin building collaborative relationships in support of the defense industry. CCAT also used its position in the non-profit and manufacturing market to connect with industry associations and businesses related to the defense industry to engage them in RADE conversations. Based on insights developed from this outreach, CCAT identified state-specific defense resources that could potentially be leveraged regionally.

Activities

CCAT began by first gathering stakeholders from across the region to engage in discussions around RADE. CCAT convened several meetings with the state OEA program managers on a one-on-one basis and as a group, and with various industry sector organizations and technical support organizations such as the region's Manufacturing Extension Partnership (MEP) Centers. The main group that was formed was referred to as the "Kitchen Cabinet" with the intention of involving as many stakeholders as possible to create the RADE partnership.

Outputs

- *Best practice models from participating states are included on virtual industry commons*: **Completed.** Best practice models from participating states were identified and added to the Virtual Industry Commons website (Task 4).
- *Identification of state A&D resources:* **Completed.** CCAT met with industry stakeholders within each participating state to better understand their respective network of defense suppliers and identified regional A&D industry resources and capabilities. In

some cases, CCAT attended conferences held to highlight specific industry resources, such as the 'Defense Innovation Days' held by the Southeastern New England Defense Industry Alliance (SENEDIA) in Rhode Island; which included plenary sessions on innovation by DoD officials and industry experts. Overall, CCAT was successful in accessing and gathering information about each participating state's A&D resources. CCAT experienced some challenges working through staff turnover in the various state. However, CCAT utilized their own connections within the state to obtain information from industry partners as well as collect the known web-based resources.

Enhanced Capabilities

- *Completion and approval of RADE Strategic Plan:* **In progress**. In February 2017, CCAT submitted a draft of the RADE Strategic Plan to DECD for review and approval. DECD refined that plan and shared it with OEA. OEA convened RADE stakeholders in Arlington, Virginia on March 27, 2017 and the input provided during that session was incorporated into the draft plan. The draft plan serves as a foundation for discussions, but it was never fully adopted in this form by the individual states. Instead, it provided insights for on-going dialogue.

  In this way, the RADE Strategic Plan is intended to serve as a blueprint for the continued success of the A&D manufacturing sector by building best practice models, an alignment of regional assets and resources, and effective communication among state stakeholders such as: the Massachusetts' Defense Industry Transformation, Rhode Island's STEAMengine, and New Hampshire's Defense Industry Partnership. The RADE Strategic Plan includes a framework for research, planning and dissemination around vision/goals, governance, membership and/or participation, communication, sustainability, ongoing evaluation and desired outcomes.

- *Participation commitment agreements received from each of the New England states:* **In progress.** The states agreed to continue collaborating on a subsequent joint application for funding to support a regional defense industry OEA-funded grant for 2018 and beyond.

- *RADE "Road Show" presentations:* **Completed.** The RADE Road Show presentations were successfully administered via webinar and in-person. Road Show presentations articulated to stakeholders what a New England collaborative A&D industry cluster (e.g. RADE) could hope to achieve. Specifically, the presentations demonstrated the Virtual Industry Commons website (Task 4), and the capabilities of the Economic Modeling Platform (Task 1).

Outcomes: Lasting Impacts

There have been several meetings of the six state OEA grantees to discuss formalizing RADE as a joint initiative, and all six states remain engaged in those discussions. Although a formal

structure has yet to be established, there has been an increase in state capacity and knowledge of the importance of A&D to the six-state region and the importance of a banded effort across states. On August 2, 2017, a group of companies representing each of the states joined forces with senior executives from each of the six state economic development agencies to discuss the need and demand for a regional effort. During that discussion, a regional governing structure was proposed and is being formalized in an application for further OEA funding being submitted jointly by the six states in the fall of 2017.

While each of the states has its own OEA grant, the biggest obstacle to overcome has been the need to demonstrate value to both the individual states as well as the region's defense industry. The August 2 meeting referenced above allowed industry leaders an opportunity to voice their perspective on what might be valuable to defense companies, and that has guided the proposed organizational structure and work program going forward. The companies suggested an initial focus on four key areas: developing trusted suppliers (including ensuring that they are compliant with cyber security regulations), meeting defense-specific workforce needs (e.g., security clearance and immigration status), addressing procurement reform issues, and promoting business development opportunities for defense firms.

Lessons Learned

While there have been ongoing efforts to engage each of the six states in a conversation about formalizing the RADE structure, key challenges have slowed progress.

Biggest Accomplishments

CCAT initiated a sustained dialogue among key public, private, and non-profit organizations serving the defense industry in Connecticut, Massachusetts, Rhode Island, and Maine (with New Hampshire and Vermont added in Phase II). During the project, on-going communication among stakeholders helped to build trust moving forward. Consequently, today, the states are working together to develop consensus on the strategic and tactical actions. Business leaders are also working with senior state agency executives in helping to implement key plan elements.

Throughout the grant period, CCAT engaged in regular conversations with stakeholders regarding the status of the RADE initiative and convened group meetings involving several stakeholders. Consistent communication and outreach was key.

Biggest Challenges

One of the biggest challenges in completing Task 3 deliverables was staff turnover among key stakeholders. For instance, Connecticut DECD personnel managing Phase II of the OEA-DIA grant changed at several points during the grant period, slowing early momentum in institutionalizing RADE. Changes in other states have also required continuous efforts to educate new staff or to "catch up" key state stakeholders during periods of vacancies in key program manager positions, especially in Massachusetts and New Hampshire.

Task 4: Virtual Industry Commons

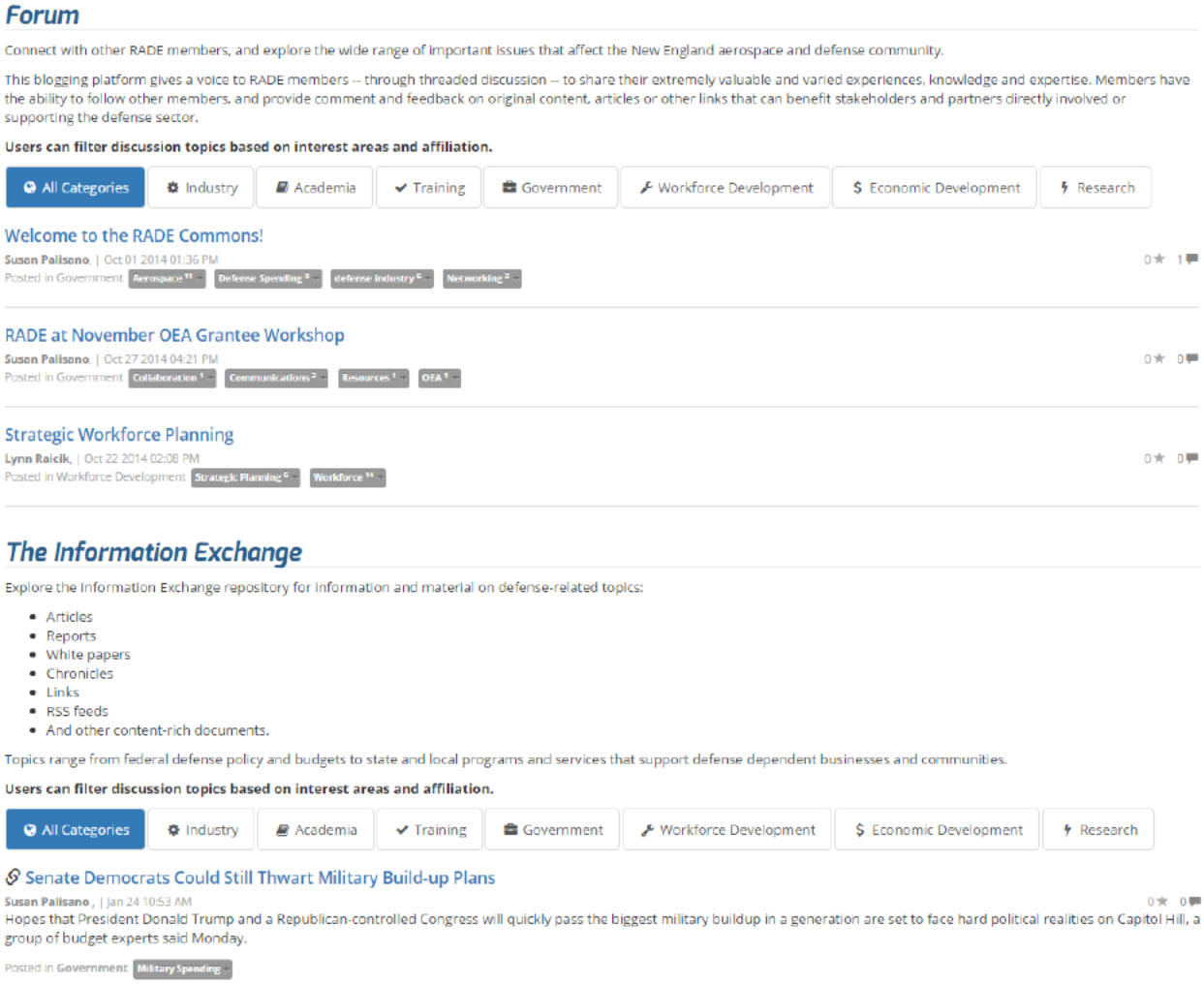
Task Overview and Rationale

The RADE initiative includes several web-based deliverables. The RADE Virtual Industry Commons (Commons) was conceived as a website designed to host and share data and tools (e.g., the supply chain data and the workforce development toolkit) created as part of the project. The Commons houses tools available behind a log-in screen designed to facilitate collaboration among defense industry stakeholders in the six states. The Commons was conceived as a virtual gathering place for users – akin to the "Commons" in New England towns of old. The Commons provides an opportunity for policymakers, economic and workforce development practitioners, and defense industry businesses to share best practices, identify trends, and develop relationships.

The RADE Commons web portal at https://www.rade-commons.org includes:

- **Landing Page:** The general landing page is a site that explains the purpose of RADE and the Commons and an RSS feed of industry related stories at the bottom of the page. An unregistered user can access the additional pages of the full website, including the "About" page, but not the content posted on the Forum or Information Exchange or the data of the Economic Modeling Platform.
- **About:** The About page describes RADE and its purpose and provides a general introduction to the Commons and what a user can expect to find on the full site. From the About page, one can access information on key RADE partners, including each state's main contact and state-specific OEA efforts.
- **The Forum:** The Forum enables registered users to access discussion threads or start his/her own discussion with other users. Illustrated in Figure 3, the Forum serves as an opportunity for users to post threaded discussion topics to encourage conversation on a variety of issues. Several categories are available to users including Industry, Academia, Training, Government, Workforce Development, Economic Development, and Training. Discussions are searchable by keywords.
- **The Information Exchange:** The Information Exchange is a repository for resources that have been posted by other partners, made available to registered users. Featuring the same categories as the Forum, users can insert a URL or post documents. Users can then add a tag to the resource to make searching for specific topics easier; these tags are located at the top of the Information Exchange page.
- **The Economic Modeling Platform:** The Economic Modeling page provides an overview of the Economic Modeling Platform and features an FAQ on how to use the tool and about the data. Accessing the actual Economic Modeling Platform leads to a site hosted and maintained by Chmura.

Figure 3: Two Frequently Used Elements of the Commons



- **Workforce Toolkit:** The Workforce Toolkit houses best practices and tools from each of the six states that relates to workforce development. The user can narrow the search by state to access all of resources related to a single state.
- **Tools:** The Tools page includes best practices and other resources as posted by the website administrator such as the Manufacturing Job Match process and manual, an Entrepreneurship Support Services Resource Guide, a Strategic Workforce Planning Tool, and information about Rhode Island's STEAMengine project.

Inputs

CCAT collected and organized the resources that can be found on the Commons. The Commons includes data collected by Chmura (Task 1), the CCAT-designed Workforce Development Toolkit, and resources provided by the New England states (Task 2). Users can provide information on the Forum and Information Exchange, and the Tools section includes state-specific resources.

Activities

To demonstrate the capabilities and benefits of the Commons to RADE partners, CCAT sought to familiarize potential users with the site and engaged them in providing feedback throughout the site development process. To gain feedback, CCAT visited state program managers and held group meetings and webinars for a variety of audiences, including MEP Centers, manufacturing associations, defense contractors, and economic development practitioners. The biggest roll-out of the Commons was intended to be at the RADE Summit. However, an abbreviated Summit agenda eliminated much of the time planned to introduce the completed Commons to stakeholders.

Outputs

- *Increase in Commons access as demonstrated by web access tracking mechanisms*: **Completed.** The number of users with access to the Commons grew over time, but user data is limited to individuals requesting access. The website does not have automated web tracking analytics so there are no means to capture the popularity of accessing certain sites or tools available on the Commons.
- *Measurable increase (greater than 25%) in RADE Commons membership from Year One to Year Two*: **Completed.** Prior to the RADE Summit there were 30 registrants to the Commons. Following the Summit in November 2016, these numbers increased 100% when an additional 30 users requested access to the site. However, users of the website are not considered "members." The membership structure, which was originally conceived as the development of different tiers of access to information on the website based on a membership level determined by financial membership amount, was never deployed due to lack of consensus among partners that this was a preferred business model to sustain the Commons.

Enhanced Capabilities

Most deliverables related to the Commons have been completed.

- *Enhanced Forum and Information Exchange keyword/topic access:* **Completed**. The Forum provides a place for stakeholders to introduce and carry on conversations about a

variety of discussion topics. Discussions are organized by keywords/topic areas; Industry, Academia, Training, Government, Workforce Development, Economic Development and Research. The user also can see all discussion areas by selecting "All Categories". This enables to user to focus his/her search on discussions by topic area of interest. Posts are also searchable by keyword within the actual post. The Information Exchange--organized similarly to the Forum—provides a place for users to post articles, reports and other useful resources that are then accessible by other users. This page was designed for states to share frequently used tools and best practices with one another. Posts are searchable by keyword.

- *Addition of user-based search history:* **Completed**.
- *Introduction of mobile application for all major device operating systems:* **Completed**.
- *Addition of RSS news feeds for main page:* **Not completed**. The addition of an RSS news feed required more research and resources than originally imagined. On the main page of the Commons, there is a news feed on the upper right-hand side of the page that highlights the most Popular, or Latest, postings. However, it does not appear that these postings are updated regularly. At the bottom of the page is another section called "Industry News" that contains news stories that are more current.
- *Enhancement of User Profile tools and usability features:* **Completed.** Each user can create a personal profile, which in part is updated by the user and in part by his/her activity on the site. The profile consists of information uploaded by the user on the individual, his/her affiliated organization and his/her interests. The profile also monitors, and updates, the user's Latest Posts, Comments, Contributions and Activity. Like other popular social media sites, the user profile also enables others to subscribe to another user's site to easily see that user's contributions to the site and keeps track of the number of views a user receives from other users.
- *Addition of reporting functions:* **Not completed.** CCAT explored the option of including reporting functions but opted not to include this feature because potential users did not report an interest in reporting functions. Initially, the reporting feature sought to enable the administrator of the site to run reports.
- *Addition of history/archiving functions:* **Completed**.

Outcomes: Lasting Impacts

The Commons reflects a virtual presence to support a regional effort of the A&D cluster. It can potentially serve as a clearinghouse for resources and knowledge going forward. However, the lack of participation in keeping the site updated with new practices, resources and tools by users, and the lack of resources to maintain the site, may reduce the ability of the Commons to have the impact intended.

Lessons Learned

The Commons is a valuable resource to an eventually formalized RADE; however, the value of the site will depend on site usage and user participation. The longevity of the site will depend on the financial support that is leveraged to maintain it.

Biggest Accomplishments

Users of the Commons report an attractive and well-thought-out layout that is easy to navigate, access and utilize. Users agreed that the investment to incorporate best practices of current social media platforms into the backend design of the functionality of the site is reflected in the final product. LinkedIn and Reddit provided much of the inspiration for several features of the Commons, such as the ability to comment and like items on the Information Exchange page.

Biggest Challenges

While the development of the actual website required more research and resources than originally planned, the biggest challenge associated with creating the website as an online community was generating the interest from potential users and attracting the numbers needed to sustain an ongoing dialogue and sharing of resources that was originally intended. Success of the Commons is directly related to the virtual engagement of peers within and across stakeholder groups, leveraging the social media-type network intent of the Commons.

A tiered membership plan was given a lot of consideration. Members could join at various paid levels, which would translate into what type of access the user would have to the tools on the Commons. For a lower paid membership, access would be more limited than for a higher paid membership. The tiered membership was designed to encourage as many users as possible to take advantage of the Commons and allowed the user to pick and choose which features they wanted access to. The plan took into consideration that smaller users might not need access to the more sophisticated tools, thus lowering their membership fee, whereas other users who might want to access the higher functioning tools would be able to afford a slightly higher membership rate.

With no resources dedicated to marketing the site to potential users, the site has not attracted the critical mass of participation required to build self-sustaining activity. In retrospect, and when considering moving forward with the site, the project participants suggested that a marketing specialist should be hired to develop a marketing plan to increase visibility and awareness of the site and its abilities.

It is unclear how the Commons will be supported moving forward. The estimated yearly cost to maintain the Commons, minus the Economic Modeling Platform, is about $20,000. However, this does not include active staffing of the Commons to keep the information up to date.

Task 5: Manufacturing Innovation

Task Overview and Rationale

Key to the engine production of the F135 is aerospace manufacturer Pratt & Whitney (P&W), which is headquartered in East Hartford, Connecticut, a subsidiary of United Technologies Corporation (UTC) headquartered in Farmington, Connecticut. At the 2014 Connecticut Business and Industry Association's Manufacturing Summit in New Haven, Pratt & Whitney (P&W) announced its expectations for a 55% increase in its current level of production of F135 engines, from 4,500 units to 7,000 units each year. This projected growth provides the basis for suppliers seeking to make a business case for investing in innovative manufacturing methodologies or advanced technologies, but P&W remains concerned that its engine market share has dropped from 60% in the 1960's to about 20% today. According to P&W, this decline is due to increased global competition and inadequate investment by suppliers in advanced technologies. P&W plans to review and winnow its F135 supplier team in favor of those consistently producing the highest quality parts at the most competitive price.

This task focuses largely on addressing the technology challenges by enhancing area firms' ability to improve manufacturing quality and speed the process of verifying quality within more aggressive tolerance levels. To do this, Connecticut provided access to equipment and technical assistance resources designed to introduce defense suppliers to technological solutions to improve quality by orders of magnitude in ways that would address not only P&W's supply chain needs but also the needs of other defense firms.

Inputs

Before the current OEA grant in 2014, DECD established the Connecticut Manufacturing Innovation Fund to support technology innovation for Connecticut manufacturers. The 11-member business advisory board uses resources available through MIF to support the growth, innovation and progress of Connecticut's advanced manufacturing sector. This charge includes assisting supply chain companies to gain more work from OEMs in domestic and global markets, and to ensure they are equipped to meet expected demand increases. MIF matched OEA funds with $450,000 in state funds to support this effort.

Specifically, DECD used grant resources to contract with CCAT and The Charles Stark Draper Laboratory Inc. (Draper), headquartered in Cambridge, Massachusetts, in partnership with CCAT and Belcan Engineering Services, to facilitate consulting and technology support to P&W suppliers that would help improve the quality control process for the F135 parts producers. These firms often require significant time to manually measure machined parts to ensure how closely the part meets military specifications. Measures of a part's density and strength are particularly difficult to assess without destroying the part after its production. CCAT purchased two pieces of equipment designed to improve the speed and accuracy in reviewing how well precision parts meet pre-determined engineering tolerances associated with size and durability.

The first piece of equipment purchased was a non-contact laser measurement device (GOM ATOS Scanbox 5108) which employs structured light scanning (SLS) metrologic technology to reconstruct the exact geometry of a surface shape. In 2015, DECD commissioned a metrology study by Draper that recommended the acquisition of equipment that used "blue-light" structured light scanning technology. This technology allows users to determine quickly whether a customized product meets design specifications. The scanner replaces human measurements using a caliper, and it does in a manner what once required hours, reducing the amount of time required to conduct quality assurance tests ensuring that manufactured parts meet size specifications as well as to reverse engineer customized parts that may need to be replaced.

The second piece of equipment also makes the quality assurance process more efficient. The 3-D x-ray computed tomography scanner (North Star Imaging X5000) provides real-time imaging to determine internal consistency for most materials. Like its medical imaging counterparts, the system uses x-rays to produce three-dimensional representations of a scanned object both externally and internally. Businesses commonly use this equipment for flaw detection, failure analysis, metrology, assembly analysis, and reverse engineering applications. The scanner is particularly important in verifying the structural integrity of products without destroying them to do so, a priority for products made with additive manufacturing techniques.

DECD turned to CCAT to host the purchased equipment. In doing so, CCAT agreed to construct the Innovation Technology Center in East Hartford, a 1,000 square-foot section of space within its International Traffic and Arms Regulations (ITAR)[12]-compliant research laboratory. The ITC operates "Trubiquity," a DoD approved secure communications network, to allow ITC staff to correspond and collaborate with ITAR-certified defense suppliers. Complementing the equipment, Draper and Belcan worked primarily with Connecticut-based F135 defense suppliers interested in learning more about using the structured light scanning technology for producing products or improving designs.

Activities

The Task 5 Consulting Team began the task with a SWOT analysis to assess the potential costs and benefits associated with addressing delays associated with the limited supplier efforts to improve their quality assurance reviews. P&W and other OEMs noted that improving quality standards and reducing time delays were critical in competing for DoD contracts. In response, Connecticut expanded its efforts to address weaknesses among the suppliers that are not consistently meeting P&W's standards for quality controls and advanced technologies. The structured light scanning equipment was placed in operation in December 2016. The x-ray scanning equipment became available in August 2017.

[12] "All manufacturers, exporters, and brokers of defense articles, related technical data and defense services as defined on the United States Munitions List (Part 121 of the ITAR) are required to register with the Directorate of Defense Trade Controls (DDTC)" – U.S. State Department.

To demonstrate the value of these two new pieces of scanning equipment, P&W shared with DECD a list of nearly 70 Connecticut-based F135 defense suppliers. To better manage outreach, DECD contracted with Belcan Engineering Services, an engineering and manufacturing supply chain analytics firm, to alert those suppliers of the two pieces of equipment and an offer of pro-bono product and process improvement services from Draper. Belcan managed the outreach process, and CCAT demonstrated the equipment to defense suppliers at the ITC facility.

Outputs

- *A minimum of 20 supply chain companies participate* – **Completed**. The Task 5 Consulting Team exceeded the target, serving 26 defense supply chain companies. CCAT has engaged 19 companies with exposure to the new equipment, while Draper has engaged 7 companies with on-site walk-throughs.
- *A minimum of 10 projects implemented* – ***Completed***. The Task 5 Consulting Team exceeded the target with 28 projects implemented. CCAT has engaged 19 companies, while Draper has implemented 13 new equipment and/or processes at 4 different defense supply chain companies.
- *Available hours used on the equipment by suppliers* – **Completed**. Currently, CCAT staff have spent more than 1,800 hours demonstrating the GOM ATOS Scanner and NSI X5000 System to defense suppliers visiting the ITC.
- *Number of projects* – **In progress**. So far, CCAT and Draper have initiated 25 projects. CCAT has begun 12 projects with 12 defense suppliers. Draper has started 13 projects with 7 defense suppliers.
- *Equipment ordered by suppliers* – **Completed**. At the recommendation of Draper, Deburring House located in New Berlin, Connecticut has purchased a variation of the GOM ATOS Scanner to improve their product inspection and process controls.

Enhanced Capabilities

- *Connecticut Innovation Technology Center is established, operational, and staffed* – **Completed**. The Innovation Technology Center is operational, and sufficiently staffed.
- *Suppliers are aware of the ITC and its capabilities* – **In progress**. ITC and thereby CCAT is locally, regionally, and nationally recognized for the facility's capabilities. Specifically, CT suppliers enjoy a collegial relationship with the ITC and proactively engage ITC staff about new and emerging technologies. This is on-going because more can always be done to increase that awareness.
- *Participating companies' staff trained on new processes and technologies* – **In progress**. Since the GOM ATOS' arrival at the ITC facility in December 2016, and

arrival of the NSI X5000 System X-Ray equipment in August 2017, ITC staff continues to demonstrate the technologies to participating companies.

- *Manufacturing Technology Innovation Needs Statement* – **Completed**. Draper has collected feedback from participating companies, along with an environmental scan, assessing generally technology needs and process improvement implementations. This information was compiled into a report delivered to DECD that includes strategies for improving the defense industrial base, such as:
    - strengthening the A&D industry's competitiveness in Connecticut,
    - facilitating adaptation to change,
    - nurturing the industry's development, and
    - preparing the industry's workforce.

Outcomes: Lasting Impacts

The establishment of the Innovation Technology Center at CCAT represents a sustained increase in local capacity. The ITC offers the opportunity for the defense supply chain to test the latest technologies and equipment as they seek to grow and/or diversify their operations. The two new pieces of scanning technology, "blue light" and "X-ray," add to CCAT's collection of technology resources available to companies. Additionally, as Connecticut works to raise awareness about RADE, stakeholders and companies outside the state have become aware of this asset and have expressed interest in leveraging as a benefit to all New England.

Lessons Learned

Biggest Accomplishments

The project provided access to state-of-the-art equipment to test new manufacturing technologies within the state and region's defense supply chain. This equipment would not have been available without the help of OEA resources that leveraged the state of Connecticut's funding for the equipment purchase. There was high demand among companies to try the new "blue light" structure-light scanning (SLS) technology. Companies particularly valued the opportunity to try the equipment in a "hands on" setting with a neutral facilitator; rather than receiving a sales pitch from one of several competitor SLS equipment manufacturers.

The location in East Hartford allowed companies to bring in sample products from their own production lines to try in the scanner. In several cases, the "blue light" equipment did not prove to be helpful to their operations, saving the firm from investing in a technology that would not ultimately have been useful. Companies were satisfied with this outcome because it allowed them to decide without wasting resources on an unsuitable technology. When ITC added the "X-ray" scanning equipment, it became clear that it would help companies in a different way. These equipment assets remain tangible and lasting resources for New England companies.

Biggest Challenges

DECD Personnel Changes resulted in delays in identifying the most advantageous technology (structured blue-light scanning); gaining Connecticut leadership's approval to use MIF monies to purchase the equipment; executing the equipment purchase; and subcontracting Belcan to facilitate the outreach of F135 suppliers. Related project tasks and deliverables were conducted later in the project (2016 and 2017), despite the Phase 2 grant period beginning in 2014.

Difficulties in engaging F135 defense suppliers resulted because suppliers distrusted receiving product and process innovation assistance at no-cost. Once CCAT notified suppliers of its collaboration with Draper, the companies began to respond positively. A further lesson was that when OEMs alerted their suppliers about the resource (including Draper consulting services) or they learned about the opportunity through an industry group, the firms were more responsive.

Process improvement and project implementation were limited by the size of project that could be completed for each company. Draper noted that some of its company engagements were more intensive than others. However, due to pay-out restrictions, Draper had to forego opportunities for delivering more intensive training and assistance. Moving forward, Draper suggested allowing for greater flexibility for project funding to address the staggered intensity of process improvement.

Inadequate equipment training. Although ITC staff received training on how to operate the GOM ATOS Scanner, this was not sufficient to meet all the companies' needs. ITC staff were self-taught in some aspects of operating the equipment and associated software. The training provided did not feature the most up-to-date version of the GOM ATOS equipment, and this led instructors to troubleshoot unforeseen issues while delivering training to ITC staff, further complicating comprehension.

Facilities required for installing the machinery and equipment involved structural changes to the ITC to accommodate the GOM ATOS Scanbox and remain compliant with ITAR requirements. Additionally, ITC staff were required to set up "Trubiquity", a DoD approved secure communications network, to allow ITC staff to correspond and collaborate with ITAR-certified defense suppliers.

Gaining Consensus on the Definition of "Project" meant that CCAT and Draper had to spend some time addressing different perceptions about the scope of work. CCAT defined a project as either a scheduled site-visit to the ITC facility or expressed interest by a defense supplier to ITC staff. On the other hand, Draper preferred to visit manufacturers and therefore defined a project by whether a site visit ultimately led to a "process analysis" (e.g. an identification of the variations in the suppliers' manufacturing processes); "process change" (e.g. a recommendation to modify the suppliers' current manufacturing process); or "equipment recommendation" (e.g. a recommendation for purchasing new equipment, including metrology equipment). These differences led CCAT and Draper initially to report different project results that had to be reconciled.

Task 6: Outreach

Task Overview and Rationale

The RADE New England Summit and Exposition was the key outreach activity that was intended to spark interest in participation in RADE and use of the web tools found on the Commons. The Summit was held on November 9, 2016 for a half day at the Connecticut Convention Center in Hartford, Connecticut. This event sought to bring together the A&D industry across the New England region. Initially, the Summit goal was to:

- Create a foundation for future collaboration between state stakeholders
- Introduce the web-based tools (the Platform and the Commons) to state stakeholders, economic development practitioners and A&D companies
- Set the tone for moving forward together between the various players at the conference through the development of an outreach strategy designed to increase participation in cluster activities and usage of RADE resources.

Inputs

CCAT created an initial planning committee was comprised of CCAT staff and representatives from Massachusetts, Maine and New Hampshire. However, the event was rescheduled twice. CCAT staff eventually planned the content and publicized the November 2016 Summit.

Activities

To implement the Summit, the project team sought to (1) establish a defense cluster ad hoc conference planning committee, (2) create a timeline and action plan for a regional conference; (3) plan and execute RADE Summit & Exposition (initially planned for the Fall 2015); and (4) develop and implement a strategic regional RADE awareness "campaign".

Summit planning initially envisioned plenary keynote speakers on defense industry trends, DoD budget forecasting, and defense industry market trends as well as breakout sessions focused on issues such as DoD acquisition, technology innovation in defense manufacturing, and response strategies in workforce development, and business-to-business (B2B) "speed dating" rounds. In addition, the planners planned to debut and demonstrate RADE online resources, including the Economic Modeling Platform and the Virtual Commons.

However, several impediments arose during the planning phase, which meant that the meeting that was held in November 2016 was truncated into a half-day Summit with several key components of the original Summit plan missing. Although the meeting did include a plenary keynote session presentation on important defense trends by Pierre Chao from Enlightenment Capital and demonstrations of the Platform, the shortened schedule prevented a full roll out of the Commons resulted in fewer break-out sessions.

Outputs

The conference attracted participants from all six New England states and received high marks from attendees. After the conference, there was an increase in the number of individuals requesting access to the RADE Commons.

- *Number of conference attendees:* **Completed.** 75 people from the public and private sector attended the Summit. Registration was higher than actual turnout, but attendees represented all six of the New England states, while businesses were primarily from CT.
- *Post-conference survey results demonstrate a minimum of 85% attendee satisfaction*: **Completed.** The post-conference survey was sent out to 73 attendees. About 21 attendees participated in the survey for a response rate of 29 percent. Of those who responded, 95 percent indicated that they were either very satisfied (47.7%) or satisfied (47.6%) with the conference. Only 4.7 percent indicated a neutral response to the conference and 0% were somewhat dissatisfied or very dissatisfied.

Enhanced Capabilities

- *Measurable increase (+25%) in usage of RADE resources from Year 1 to Year 2:* **Completed.** Prior to the Summit, there were 30 people who had requested website access to the Commons. After the Summit, an additional 30 people have requested access, indicating a 100% increase in the number of registered users of the RADE Commons. However, the actual usage of the various RADE resources is not currently tracked on the website. Hence, it is not possible to say how these registered individuals are using the RADE resources located on the Commons virtual portal or what tools they are accessing.
- *Significant increase (+50%) in RADE Commons membership from Year 1 to Year 2*: **Not Completed.** While there was a 100% increase in requests for user access to the Commons after the Summit; membership did not increase. This is because while a tiered membership model had been developed to financially support the RADE Commons, that membership model has not yet been activated. Currently, access to use of the RADE Commons website is free for all users.
- *Present on the RADE initiative at a minimum of one regional or national conference:* **Completed.** A presentation was made on RADE at the Association of Defense Communities 2016 Summit in Washington DC on the "Building New Capacities for Defense Contractors" panel.

Outcomes: Lasting Impacts

The Summit itself may have increased state capacity and knowledge about A&D and RADE's efforts, but the limited attendance and its one-time nature did not make a significant impact on a longer term effort to formalize the A&D Cluster. However, an independent meeting of the six

state partners that took place after the Summit proved important in generating cross-state dialogue in planning to move forward as a region. That dialogue has continued through the project end and is contributing to the development of a joint six-state proposal to OEA for continued funding.

Lessons Learned

The Summit that was held in November 2016 brought stakeholders from the defense sector together from across the region. However, it did not accomplish as much as was originally intended by the originally planned day-and-a-half Summit. The original Summit was cancelled due to the lack of attendees that originally registered. It was believed that a shorter conference would attract a bigger audience.

Biggest Accomplishments

Overall, the Summit accomplished key aspects of its goal to build the A&D community and promote the RADE identity. While the final Summit was primarily organized and planned by CCAT and DECD staff, it benefitted from the input of a larger ad hoc conference committee that was organized to plan the Summit in 2015. The committee, which included members of the participating stakeholder states, meant more buy-in from partners. They had major input on the speakers, sessions and design of the conference, which served as a motivation for them to remain engaged in the process.

Besides the success of the Summit itself, another positive offshoot was that it brought together the individual state stakeholders and enabled them to participate in an OEA facilitated discussion after the Summit. Partners could discuss areas of shared interest and potential actions to continue the collaboration to further advance the region's A&D sector. The session centered around topics that the states could rally around if an opportunity for future funding presented itself.

Participants of the smaller OEA facilitated meeting discussed the fact that many of the New England grantees are currently operating in different phases of their grants and that their respective defense industry adjustment goals vary. There was much discussion around workforce and the potential need to keep the economic modeling data fresh and updated.

The group created a "short-list" of six broader OEA topics the region could coalesce around in the future:

- **Using information as a sharing point (economies of scale):** Utilizing the Commons and economic modeling tools and sharing data when possible.
- **Capacity building to help support for the sector:** Facilitating industry/cluster maintenance by working together to grow A&D throughout the region.

- **Workforce Development:** Sharing workforce training programs and workforce impact assessments, building a regional workforce equipped with skills the defense industry needs, transitional workforce programs.
- **Building support and branding for New England's defense sector:** Developing the "Defense Narrative" for the region as a defense industry giant/magnet.
- **Sustaining existing programs and growing them regionally:** Keeping the Commons and economic modeling tools up-to-date.
- **Role of regional group in engaging companies:** Offering regional partnerships, resources, pilot programs, testimonials and case studies.

Biggest Challenges

Learning from the Summit planning efforts, the team identified many ways that they could have approached the Summit differently. This includes more aggressive marketing by and to stakeholders and businesses in the partner states. The team would have also developed the program in conjunction with a designated conference committee representing a broader set of stakeholders to ensure that the program appealed to the target audience. Finally, the group would have more actively reached out to economic developers, perhaps partnering with the Northeastern Economic Developers Association (NEDA).

- *Regional Issues:* It was difficult planning an event that would directly appeal to the six states involved in RADE. There was much effort to invite a keynote speaker that would have name recognition among the target audience. Finding someone that appealed to potential participants from across all six New England states was difficult, given that priorities differ among the six states. Someone who might draw from one state may not have as much draw from another one of the states. It was also difficult to share the justification why someone from another state might attend this event rather than attending a defense-related event being held in his/her own state.
- *Timing:* The Summit was held the day after elections. Two of the states had gubernatorial races in their states, which had some impact on attendance, as did the presidential race that went late into the evening the night before. Another timing issue was trying to find dates that did not conflict with similar types of conferences.
- *Differentiation:* The conference committee for the Summit wrestled with how to best differentiate the Summit from similar meetings held both within the states and nationally.
- *Venue:* The conference was held at the Connecticut Convention Center. While this was a central location within Hartford, it was quite expensive. However, this did provide the opportunity to hold the keynote lunch session in conjunction with a manufacturing event that was being held concurrently within the facility.

Findings and Conclusions

The New England defense industry is a key regional economic asset. Furthermore, the region can compete more effectively if the states work together to support the industry and align their individual assets and resources with one another and with DoD budget, policy and program priorities. Recent DoD announcements suggest there may be new opportunities for New England's aerospace and marine defense suppliers, but it will be critical for the region to aggressively work together to capture a portion of those planned investments. At the same time, the region's defense sector must continue to seek new market opportunities to diversify the sector.

Initial New England RADE efforts (in Phases I and II), supported with OEA funding, have resulted in some important outcomes that can be useful as a foundation for cooperation. These include:

1) Building connections across states to identify and address common issues.
2) Aggregating and analyzing information about the region's A&D strengths and capacity to diversify.
3) Piloting new program approaches in areas like workforce development, technology commercialization, and regional planning – and then sharing those results with partner states.
4) Building the core infrastructure and tools needed to maintain current and future collaboration.

These early achievements generated positive momentum, and regional interest in continuing the RADE effort. This multi-state interest in working jointly has attracted OEA support for a unique regional collaboration. But to take advantage of this support, the region will need a suitable governing structure and work plan to ensure the effort's sustainability.

Areas for Action to Improve Success

To strengthen this second phase and to build a viable third phase, the New England RADE effort will need to undertake several key tasks:

Generate public-private consensus on a vision for RADE going forward

Under the leadership of Connecticut DECD and CCAT, the first two phases of RADE provide a strong foundation for current and future collaboration across New England; however, more work is needed to develop commitment to the effort both from the other states and the private sector.

The draft RADE strategic plan lays out a vision where RADE works as a partnership of the New England states guided by a clear work plan and shared responsibilities. The goals include establishing a formal organizational infrastructure to serve as a hub to coordinate individual state efforts, to manage regional services provided to industry, and to develop resources to

support a work program that promotes a regional A&D industry. While the state economic development agencies have expressed support for these goals in principle, the depth of support will depend on the private sector stepping forward to serve as the efforts lynchpin. Cluster initiatives are inherently public-private collaborations; engaging the private sector to lead the effort and guide the work with the public sector leveraging their collective resources to meet the private sector's needs.

Expand New England defense industry input into RADE's mission and priorities

Industry leadership is needed to make a cluster initiative work. The project leaders have attempted to gain input from defense industries through individual interviews and by convening defense industries at the Summit. However, there has not been an ongoing organized effort to keep key industry leaders engaged.

The August 2017 meeting, in which state leaders convened 11 industry leaders representing the six New England states, was an important first step in engaging industry leaders at the table and provided important perspectives about the needs of the New England defense company representatives. During the session, the group gained insights about current industry "pain points" that could become the focus on future joint efforts. State leaders learned that companies were particularly interested in issues related to finding trusted suppliers, addressing workforce barriers, reforming DoD procurement, and promoting market diversification efforts.

This meeting was an example of how industry input could guide stronger regional effort. Additionally, it positions the private sector to become the lead in that effort, for it is only with in-depth engagement from industry that a regional effort can be successful.

Develop a business model for RADE to sustain regional collaboration and strategy implementation

Once a plan is put into place, the region will need to identify an organizational infrastructure to implement the activities identified by the group. This might be through the development of a new organization, or leveraging the expertise of an existing entity that already has a New England regional footprint.

Preliminary thoughts suggest that this organizational infrastructure should build on the work already being done by existing nonprofit organizations and encourage those groups to collaborate. If this is the case, the group will need to demonstrate expertise in the defense sector, have key strategic relationships across the states and with DoD, have the political and public policy expertise to engage with elected and appointed government officials as well as the private sector. The group will need the ability to develop and implement a sustainable business model that can raise funds and manage resources for the cluster going forward without competing with existing public or private efforts.

Address the state-specific issues in maintaining continued support for RADE

Efforts over the grant period have suffered through fits and starts due to the loss of institutional knowledge and staff support at various times and for different tasks. This occurred with the grantee as well as partner states. Staff turnover and leadership changes can significantly slow down the process of forming a meaningful RADE cluster. Having stable staffing and an entity to take responsibility for day-to-day implementation of operational cluster activities is a vital component to RADE's achieving its intended outcomes, and the solutions may require creative approaches to sharing institutional knowledge across states.

Determine which RADE-supported tools and services should be incorporated into a sustained regional cluster effort

Going forward, it will be vital to review and assess stakeholder demand for the existing RADE products; the RADE Virtual Commons web portal, the workforce development toolkit, the commercialization equipment at ITC, and the Economic Modeling Platform. It should also be noted that the activities that are being undertaken by individual states (such as export promotion, design thinking curriculum, and customer management system) might also be adapted in some form for regional use.

The RADE partners must take stock and assess which of these tools are most likely to offer a value proposition to private sector partners or potential funders. The tools deemed most valuable should be integrated as assets of the regional initiative and sustained going forward. A continued and more concerted effort is needed to adequately assess the value of the tools, and what additional services are needed to support the New England defense cluster.

Furthermore, wherever possible, the tools and services should align or build on proven models. A key challenge that the existing RADE effort faces is building both awareness and credibility with defense companies. As RADE examines its limited resources to support tools and services, its leaders should focus on targeting resources to improving initiatives that are already in place with sustained resources rather than trying to create new tools and services that may not be sustainable. Examples include support for improved products delivered through state economic development programs (e.g., export promotion or MEP), expansion of access to Small Business Innovation Research (SBIR) or expanding pre-existing technology transfer activities. These efforts already have proven public support and demonstrated benefits to companies.

Develop a more comprehensive and systematic outreach strategy for RADE and its available tools and services

Communications about RADE, as well as about the tools and services available, have been ad hoc. Beyond the RADE Summit, key stakeholders have limited, or no knowledge, about the web portal and tools that have been created. Task 6 provided for outreach at a single Summit, but it did not account for the need to continuously communicate to economic development

stakeholders and companies about the initiatives or the tools being created to support the initiative.

The communication issue is not only with potential customers but also with existing or potential partners and stakeholders and even potential funders. These efforts need not be expensive, but they will take some staff effort to engage with partners and to communicate with potential users through a variety of means (including web-based media, regional trade association and similar events, and personal contact) the value of these products.

To enhance the success of the region's outreach efforts, the marketing strategy will need to outline the appropriate mechanisms to reach different key audiences. For example, where the goal is to engage economic developers, the outreach efforts will need to be personal – focused at events where economic development leaders convene – and the message will need to focus on how the RADE tools can be useful in helping them achieve their goals.

For companies, the outreach strategy will need to be different and will need to focus on the value proposition offered by a regional collaboration or by the individual RADE products and services developed to date. The best way to reach these businesses is either through one-on-one interactions (i.e., sales calls) or through exposure at events that they are likely to attend. In those instances, it will be important to understand the business pain points and be able to describe how RADE tools and services can help to address those issues. For instance, companies that are seeking product engineering solutions may find the GOM ATOS Scanner and the x-ray scanning equipment available at ITC of value.

Rather than trying to re-create the RADE Summit that tries to convene stakeholders (public and private), it may be more valuable for RADE participants to engage with partners that are already convening key partners and propose presentations and panels or to exhibit at regional or state-level industry meetings. Creating an inventory of these groups and related events will be an important first step in the process.

Appendix: Summary of OEA State Investments in New England

This appendix provides a review of the key activities associated with the six state OEA efforts.

Connecticut

Connecticut's DECD, partnering with CCAT, established the Regional Aerospace and Defense Exchange (RADE) to support several activities, including:

1. **Economic Modeling Platform** – Build a web-based, graphical, interactive platform to analyze and assess the dependency of the region's supply chain on DoD spending.
2. **Workforce Toolkit** – Collect workforce development resources that provide best practices and model programs responding to industry challenges and changes.
3. **Multi-state Compact** – Create a network of state partners to develop a policy consensus to maintain and grow the New England A&D industry.
4. **Virtual Industry Commons** – Develop an online forum unique to the industry designed to share information, facilitate discussions, address policy, and represent a collective voice for the sector.
5. **Manufacturing Innovation** – Increase Connecticut companies' cost competitiveness by providing access to companies to specialize equipment and technical assistance.
6. **Outreach** – Coordinate a RADE New England Summit, comprised of workshops around critical issues, exhibits of new technologies, and demonstrating RADE tools.
7. **Evaluation** – Evaluate the RADE initiative's effectiveness and impact.

RADE seeks collaboration with other New England states; identify stakeholders, provide state-specific RADE briefings, and coordinate the regional cluster initiative. Also, key to the continued success of New England's regional vision for growth in the A&D sector is OEA's funding of a "Virtual Industry Commons." This web-based platform serves to facilitate networking and communication among the entire network of multi-state partners and stakeholders, and as a repository for resources and tools.

Maine

Maine is building capacity to provide direct services to companies and to develop a broader diversification plan. The key tasks include:

- **Project Management** – Hire someone to work for the Maine Department of Economic and Community Development to oversee Maine's initiative.
- **Asset and Supply Chain Analysis** – Design, develop and publish a comprehensive asset and supply chain map by surveying and categorizing small and medium sized

defense industry suppliers. Maine MEP will implement and collaborate with the RADE initiative to enhance the A&D exchange list specific to Maine.

- **Diversification Pilot Program** – Assess the competencies and weaknesses among select Maine defense suppliers with help from the Manufacturers Association of Maine (MAME).

The potential customers for the state's OEA efforts include small and medium sized companies in defense-related industries, especially those businesses engaged in, or who can potentially pivot into related private markets. MAME has strong connections to the aerospace and maritime industries. Initial data gathering and research tasks have begun on this initiative.

Massachusetts

Massachusetts' MassDevelopment, in establishing the state's defense industry adjustment plan, sought OEA funding to help support a number of activities, including:

1. **Baseline Assessment** – Analyze the strengths of the state's defense industry and the challenges faced as a result of the defense cutbacks and loss of contract dollars.
2. **MEP Assistance** – MassMEP will accelerate their outreach and training programs to target the defense industry supply chain.
3. **Targeted Market Opportunities** – Assist the defense industry in identifying new growth potential and the opportunities to expand their customer base within the Defense arena and outside that arena.
4. **Technology Transfer** – Develop a strategy to accelerate technology transfer and the commercialization of R&D products specifically related to Defense.
5. **Workforce Development** – Assess employee strengths and identify new career pathways and related training to support the transformation and diversification of the defense industry.
6. **Communication and Outreach** – Present findings and data in a series of roundtable and monthly reports.
7. **Strategy Implementation** - Develop an implementation plan with cost estimates for action items and timelines.
8. **Analysis of Supply Chain** – Provide a SWOT assessment of the Massachusetts-based defense supply-chain to better understand their localized dynamics and to identify areas for improving efficiencies and cost effectiveness.
9. **SBIR/DOD Assistance** – MassMEP will accelerate their outreach and training programs to target the defense industry SBIR recipients to address their challenges.

10. **Business Assistance** – Small Business Administration of New England (SBANE) will expand their existing matching grant program which provides design and engineering assistance to exclusively work with defense industries.
11. **Manufacturing Innovation Centers** – The newly established Manufacturing Innovation Centers will expand to also work with defense industries to support design and engineering activities.

The baseline research and *Defense Industry Diversification Study and Strategic Blueprint* report was a collaborative process that engaged over 80 stakeholders throughout the state and region. MassDevelopment led the planning process with the guidance of a 9-member Defense Industry Strategic Steering Committee (DISSC). MassDevelopment worked with MassMEP to assist small and mid-size manufacturers with operation excellence, ISO certification, and technology driven market intelligence (TDMI) services as well as to launch a "pilot" workforce program to double the state's capacity to train advanced CNC machine operators, including setting up a second training location at UMass Lowell. Another partner, SBANE is responsible for the Defense Diversification Program, a competitive, one-time matching grant (of up to $10,000) which covers the cost for hiring a consultant to focus on specific company needs (e.g., lean manufacturing, accounting, commercialization strategy, financial restructuring, marketing, legal/advocacy of new products).

New Hampshire

New Hampshire's OEA project takes a multifaceted approach to addressing the needs of the state's defense companies, with programs intended to promote collaboration, exports, and the development of international partnerships, marketing, and technical capabilities. The Consortium was previously under-resourced to offer much more than basic programming (e.g., hosting domestic trade shows and coordinating presentations by global market experts and business-to-business matchmaking experts). The OEA grant will help expand the program's efforts by helping companies new to the A&D sectors, new to exporting, new to a specific foreign market, or those interested in expanding their A&D export activities. Companies will receive one of several different types of help

1. **Market research** – Help companies identify and better understand new target markets. The Consortium found it difficult to identify market research that is applicable across diverse sectors (sea to space).
2. **Aerospace and Defense Summits** – Coordinate state and regional events focused on networking and information exchanges across stakeholders in the A&D markets.
3. **Marketing Strategy** – Develop a statewide promotion strategy for the A&D industry, including a website for the New Hampshire Defense Export Consortium.
4. **Export Compliance** – Assist with training and consultation for companies addressing export compliance issues.

5. **Commercialization Training** – Provide training and consultation to companies looking to expand to commercial markets.

Rhode Island

Commerce RI, Rhode Island's lead agency for economic and community development, intends to conduct the following tasks in support of the development of an economic diversification strategy:

1. **Market Research** – Collect data and analyze risks and opportunities that will be presented to defense companies
2. **Partner Development** – Develop a strong network of interested stakeholders
3. **Manufacturing Assessments** – Design and pilot a program of Design Readiness Assessments for defense related manufacturers
4. **Innovation** – Develop an innovation strategy to facilitate increased technology commercialization
5. **Workforce Development** – Develop curriculum to train all levels of defense workforce in design-related and engineering thinking
6. **Shared Space** – Model and develop shared space for use by industry and partners
7. **Outreach** – Provide strategic communications to internal and external stakeholders

These tasks will allow Commerce RI to develop a plan for the creation of a center for industrial design and manufacturing. The center is named "STEAMengine" as a reference to Rhode Island's manufacturing legacy and the state's future in STEAM education and companies. STEAM refers to the opportunity for Science, Technology, Engineering, Art, and Mathematics fields to reshape our businesses and serve as the engine for economic growth. The program affords opportunities for manufacturers to spur innovation, realize new business opportunities, diversify products and markets, and grow workforce talent by fostering and promoting design thinking. Through Design Readiness Assessments conducted by Polaris Manufacturing Extension Partnership, defense-impacted businesses are trained in strategic design and creative action to better understand and subsequently further manufacturing innovation. During the 2016 pilot, 20 manufacturers were assessed for up to 6 weeks, with each business receiving approximately 100 hours of expert consulting.

Additionally, Commerce RI has worked with the Rhode Island School of Design to create the curriculum for the Design for Manufacturing Innovation Certificate. The educational program helps manufacturers create new business by utilizing design thinking, realizing sustainable business practices, understanding emerging trends, and accelerating innovation.

Vermont

Key tasks for Vermont's OEA work plan include:

1. **Impact Assessment** – Identify Vermont-specific assets that will assist diversification efforts for affected companies and creating a supply chain map.
2. **Workforce Asset Mapping** – Conduct asset mapping of workforce resources, including a survey of at least 15 defense subcontractors at Tier I, Tier II and Tier III levels in order to better inform workforce development policy and approaches. The state would also like to develop, in conjunction with existing partners, an entrepreneurial "track" to encourage innovation for Vermont defense companies.
3. **Export Promotion** – Expand business-to-business and export opportunities for companies. This includes expanding the COREX Trade Corridor participation to provide greater business-to-business opportunities with Quebec-based companies. Vermont will also work with regional partners, including Connecticut's RADE team, to further develop educational and face-to-face opportunities for the state's defense businesses.

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Subject:	Final Report Volumes 1 and 2: RADE Phase II - Task 5
Attachments:	Final Report Transmittal Letter_09-29-2017.pdf RADE II Task 5 - Final Report Vol 1 - Supplier Site Projects 20170929.pdf RADE II Task 5 Final Report Vol 2 - Best Practices of Manufacturing Innovation and Technologies Report 20170929.pdf

Dear Carmen,
On behalf of Frank and the team at Draper, I submit Final Report Volumes 1 and 2 for RADE Phase II, Task 5.

Best,
Nina

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Connecticut Department of Economic & Community Development
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29 September 2017

Subject: Final Report Volumes 1 and 2 for RADE Phase II / Task 5

Reference: Personal Services Agreement #15ECD0002PS

Dear Carmen,

Draper hereby submits the subject documents. These documents have been prepared in accordance with the referenced agreement. Please confirm receipt of the subject documents and direct any comments to the undersigned.

Respectfully,

Frank Serna
Principal Director, Strategic Initiatives

Enclosure: Final Report Volumes 1 and 2 for RADE Phase II / Task 5

cc: Internal: S. Holmes; T. Honda; N. Hong

RADE II, Task 5 Report

Volume I: Supplier Program – Supplier Site Projects

September 2017

Submitted to:

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The Charles Stark Draper Laboratory, Inc.
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In order to obtain the most candid feedback from Suppliers, information for this report volume was gathered, developed and incorporated under non-disclosure agreements, thus, preventing attribution of comments to any specific individual or organization.

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Executive Summary

Background

Since 2015, The Charles Stark Draper Laboratory, Inc. (Draper) has worked with the Connecticut Department of Economic & Community Development (DECD) under the auspices of Regional Aerospace & Defense Exchange (RADE) Phase 2. The Aerospace and Defense (A&D) sector is critical to national security, provides 24% of the state's manufacturing gross domestic product, and creates many high-paying jobs. However, the industry is subject to rapid technological change. Furthermore, A&D companies may relocate to other states as part of industry consolidation and cost reduction efforts.

In the short term, a goal for Connecticut is to sustain current A&D industry by addressing capability gaps. This document (Volume I of the project report) addresses results of phase I project work focusing on efficiency improvements for the supply chain resulting from hands-on pilot projects. Longer-term needs and recommendations to evolve and grow the Connecticut A&D industry were explored during the project phase II and are addressed in Volume II of the project report.

Phase I Work Overview

Work during phase I addressed candidate A&D manufacturing process improvements, with particular attention to increased production and quality demands for large, on-going Department of Defense (DoD) contracts. A capability found to be particularly important across suppliers was improved methods for non-contact/non-destructive inspection of parts during manufacturing. Support was provided to Connecticut Center for Advanced Technology (CCAT) to technically assess alternative equipment to meet this need. Multi-sensor Coordinate Measurement Machines (CMMs) and Structured Light 3D scanning systems were evaluated, resulting in specific equipment technical recommendations.

Also, work was performed to help individual suppliers to become more productive. Outreaches were made to forty-nine Tier 1 and Tier 2 equipment suppliers identified to Draper by the State of Connecticut. The outreach offered individual studies of opportunities for these suppliers to realize production cost and time savings. Based on interested supplier responses to the outreaches, thirteen supplier improvement projects were performed, each seeking possible areas for improvement regarding scrap reduction, process optimization, and/or throughput increases. Projects started with an on-site visit to a supplier that included an initial process walk-through to identify where process improvements could be made. Candidate process improvements were identified based on their

potential for defect reduction, mistake proofing, cycle time reduction, elimination of unnecessary inspections, better process control, mitigation of production bottlenecks, and improved gaging during production. These projects resulted in technical recommendations for new equipment, measurement system improvements, and process-specific upgrades.

Some Lessons Learned

- Direct on-site engagement with suppliers has high value.
- The Aerospace Component Manufacturers (ACM) yearly conference provides an efficient opportunity for the state to engage directly with the A&D supply chain.
- It is beneficial to introduce a neutral organization into supplier improvement initiatives.
- Non-Disclosure Agreements (NDAs) are necessary but impose documentation restrictions.
- Automation of inspection is a major improvement opportunity for many Small to Medium Enterprises (SMEs), but with implementation challenges.

1. Introduction

Aerospace and Defense (A&D) is a technologically intense industry that greatly impacts the economy and national security of the United States. Within Connecticut, A&D manufacturing comprises 24% of the state's manufacturing GDP[1]. It is important that Connecticut nurture, sustain, and grow the A&D manufacturing base within the state to benefit the local economy and to serve national needs. However, A&D technological change is rapid and ongoing. For A&D manufacturing to continue to flourish in Connecticut, the industry must keep pace, or better yet lead in addressing technological advancement while having assured, local access to a large and trained workforce well-prepared to function in the face of the technological change.

In September 2015, The Charles Stark Draper Laboratory, Inc. (Draper) was contracted by the Connecticut DECD to provide technical advisory services for the RADE Phase 2 Program established by the DoD, serving as a partner to the state for this project. Draper work scope included two phases of tasking. The Draper phase I, covered in this Volume I of the project report, aimed at providing immediate manufacturing process improvement support to the Connecticut A&D community. The Draper phase II work, reported in a separate Volume II, focused on recommendations for state government and educational system actions that would strengthen the A&D industrial base and workforce in Connecticut over three time horizons (short, medium, and long-term), enabling adaptation to technology changes and economic forces with disruptive effects on the industry.

The Draper phase I work had the primary purpose of preparing the Connecticut A&D supply chain for an increase in production and quality demands of major, already contracted manufacturing programs for the DoD. This support had an emphasis on the deployment of advanced metrology and manufacturing techniques. The two main phases of this phase I effort consisted the following studies:

- Formulation of recommendations for non-contact/non-destructive inspection systems to be acquired by the CCAT and made available for use and evaluation by A&D suppliers.
- Special projects involving partnering with the Connecticut A&D manufacturing supply chain with the aim of improving supplier efficiency.

Inspection system recommendations for CCAT are addressed in Section 2. Summaries of the supply chain special projects are provided in Section 3. Section 4 documents lessons learned.

[1] AIA - Aerospace Industries Association. (2016). *The Strength to Lift America: The State of the U.S. Aerospace & Defense Industry*. Arlington, VA.

2. Inspection System Recommendations for CCAT

The first phase of the RADE initiative consisted of supporting the CCAT in the selection of new equipment for non-contact/non-destructive inspection. CCAT was specifically interested in the evaluation of Multi-sensor CMM and Structured Light 3D Scanning systems. Once purchased, this equipment would be housed at CCAT's location for use by the Connecticut A&D community. The intention was that members of the A&D community would be able to bring their parts to CCAT's location, get hands on experience with the equipment and determine if it would be beneficial to purchase similar equipment.

In order to ensure that an objective recommendation was achieved, a weighted ranking was performed to identify the top contending systems. The first step in this evaluation was to perform an industry-wide trade study of Multi-sensor CMM's and Structured Light 3D scanning systems at varying price points. This served to identify all potential options along with the evaluation criteria used to rank them. Next, the evaluation criteria for each system was ranked on a scale of 0-10. The ranking values were assigned based on a linearly scaled comparison between systems. Weighting factors were then assigned to each evaluation criteria based on CCAT's specific use case. Each ranking value was then multiplied by its corresponding weight factor and the total weighted score for each system was determined. Systems were then given a final ranking based on this total weighted score.

The weighted ranking method described above was used to determine the top 3 contending systems using objective evidence alone. The top 3 systems were further evaluated based on additional (non-quantifiable) factors such as portability, file compatibility, software capabilities and customer reviews.

In order to evaluate customer reviews, surveys were provided to members of the Connecticut A&D community who owned and utilized the same equipment. Information on suppliers that already owned similar equipment was provided by the Connecticut DECD as part of initial supplier outreach at the beginning of the program.

The equipment evaluations for CCAT resulted in the recommendation of the GOM Atos Triple Scan 16M with ScanBox 5120 (Structured Light 3D Scanning) as well as the Hexagon Optiv Performance 664 (Multi-sensor CMM).

The GOM Atos Triple Scan 16M is a high accuracy system consistent with existing qualified measurement systems used by A&D manufacturers. It provides an option for using a touch probe for individual point measurements of inclusions that cannot be mapped with Structured Light. An

additional PlusBox allows for automated qualification of reference frames. Its specifications are provided in **Table 2-1**.

Table 2-1. Specifications for the GOM Atos Triple Scan 16M

Feature	Specification
Camera Pixels	2 x 16,000,000
Measuring Area	(170 x 130) mm^2 - (810 x 610) mm^2
Point Cloud Spacing	(0.03 - 0.16) mm
Working Distance	(440 - 800) mm
Software	ATOS Professional
Operating Environment	5 - 40°C

The GOM ScanBox 5120 is a fully automated "Plug & Play" inspection center designed for the ATOS blue light system. It utilizes the Fanuc M-20iA industrial robot with 7 axis automated movement. Its specifications are provided in **Table 2-2**.

Table 2-2. Specifications for the GOM ScanBox 5120

Feature	Specification
Space Requiremetns (W x L x H)	(3.3 x 3.3 x 2.7) m
Max. Part Dimension	2 m
Max. Part Weight	500 kg
Automated Axes	7
Robot Controller	Integrated
Master Controller	Integrated
Viewing Windows	8
Entry	Sliding Doors with Safety Locks
Opening Width	1.4 m
Floor Mounting of Fixing	Not Required
Loading	Pallet Truck

The Hexagon Optiv Performance 664 can be equipped with a chromatic white light sensor that allows for nanometer range z-axis measurements and can be used to determine surface finish characteristics. Its specifications are provided in **Table 2-3**.

Table 2-3: Hexagon Optiv Performance 664

Feature	Specification
X-Axis Travel	600mm
Y-Axis Travel	600 mm
Z-Axis Travel	400 mm
Resolution	0.1 µm
XY Measuring Accuracy	1.5 µm
FOV Size	(1.0 x 0.8) mm to (9.8 x 7.6) mm
Standard Camera	(752 x 582) pixels
Operating Environment	18-22 °C
Footprint	1.11 m x 1.54 m
Weight	1300 kg

3. Individual Supplier Improvement Projects

A series of individual supplier improvement projects were performed by Draper with the objective of providing cost/time saving benefits to the CT A&D community.

3.1 Project Selection Process

The first step in the individual supplier project selection process was to perform several rounds of supplier outreach to initiate contact and garner interest in participation. A list of Tier 1 and Tier 2 suppliers was provided to Draper by the DECD, which was used to focus the improvement projects on benefits for currently contracted, large DoD programs. Each supplier on the list was evaluated to determine its size and primary operations. Based on this evaluation, each supplier was categorized into 3 Priority Levels corresponding to the value that Draper could provide. For example, suppliers that already had well established continuous improvement programs were prioritized lower than those that had no history of continuous improvement. Although the prioritization affected the order in which the supplier outreach took place, all suppliers identified to Draper were contacted and given the opportunity to participate in the program.

Once a supplier had confirmed interest in participating in the program, the next step was to perform an on-site visit. The purpose of this visit was to provide an overview of the RADE Program and to conduct an initial process walk-through. The process walk-throughs identified areas for possible improvement relative to scrap reduction, streamlining/process optimization and increasing throughput. The possible areas of improvement that were considered included:

- Defect reduction at operations of high fallout.

- Implementation of Poke Yoke devices (mistake proofing).
- Reduction in cycle time through Lean Manufacturing practices.
- Capability studies to reduce unnecessary inspections for high Process Capability (Cpk >1.33, corresponding to a 4-σ capability).
- Implementation of Statistical Process Control (SPC) for complex operations.
- Increasing capacity for bottlenecked operations.
- Implementation of functional gages (go/no-go) for complex manual inspections.
- Gage Repair and Return (R&R) of variable measurement systems.

Once a specific improvement project was identified, a Letter of Intent was created to outline the goals, scope, deliverables and metrics of success. The overall process for project identification, selection and approval can be seen below in **Figure 3-1**.

All candidate process improvements were chosen based on potential impact to quality and ability to realize cost savings within the first year of implementation. Project execution followed the Define, Measure, Analyze, Improve, and Control (DMAIC) process that is associated with Six Sigma methodology. Specific DMAIC steps are identified in **Figure 3-2**.

As part of the RADE-identified supplier outreach, Draper identified 14 potentially interested suppliers. This resulted in 8 process walk-throughs and 13 projects across 4 actively participating suppliers. An overview of these improvement projects is provided in **Table 3-1**.

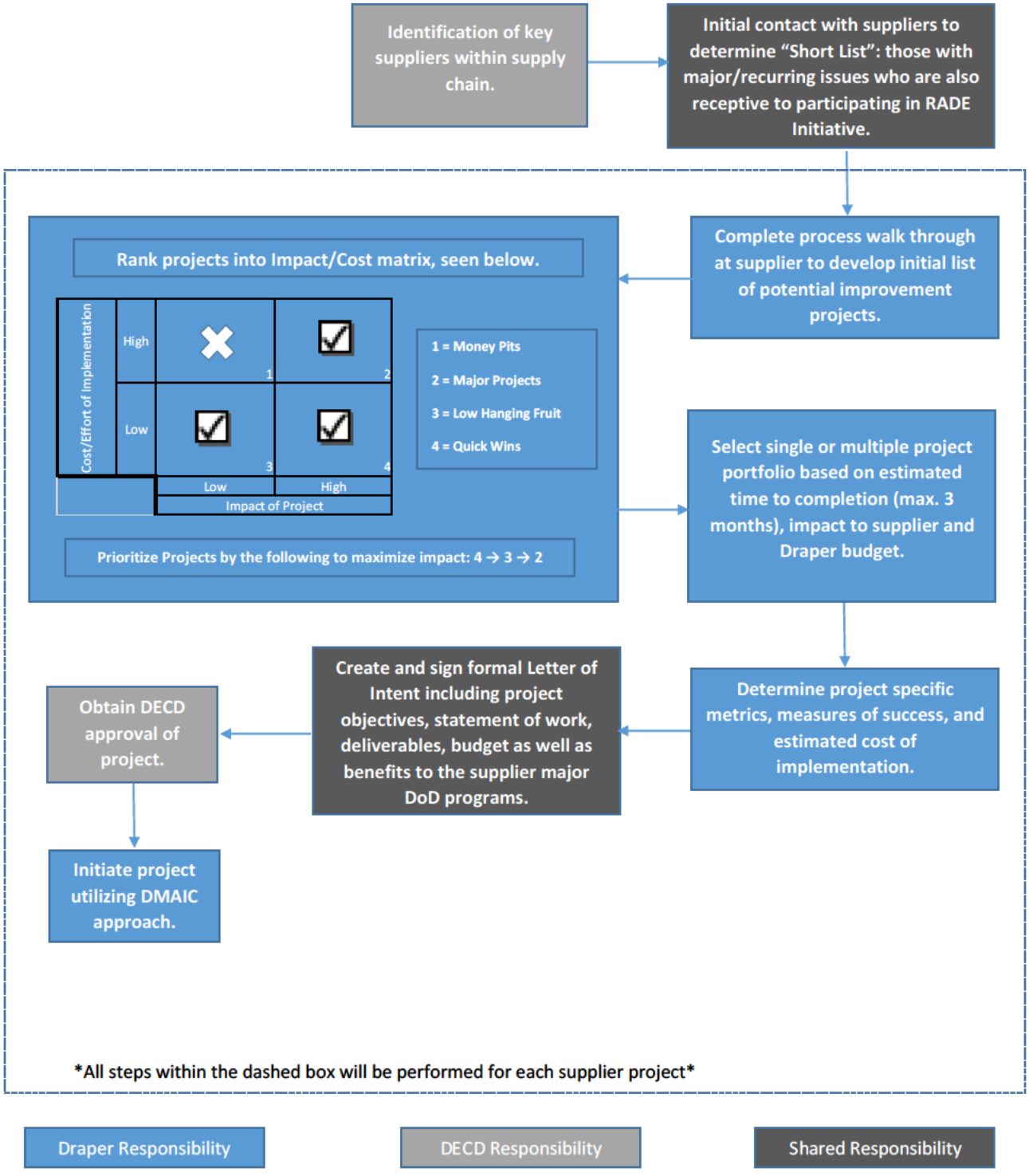


Figure 3-1: Individual Supplier Project Selection and Approval Process



Figure 3-2: The DMAIC Process

Table 3-1: Supplier Improvement Project Summaries

Project	Project Solutions	Benefit
Project #1	Implement the use of portable 3D Scanning.	Improvement in the quality of tool profiles and reduced cycle time, with means provided for accomplishment of multiple process steps automatically while providing more profiles that prevent tools from losing contact with their sensors.
Project #2	Apply 3D printing techniques to encapsulate sensor components prior to embedment.	Reduced cycle time by 34% no matter what kind of epoxy type is used.
Project #3	Utilize Makergear M2 for encapsulation of components in tool management systems.	M2 recommended based on layer height, build volume, materials, heated bed capability, dual-extrusion capabilities, and price, along with software capabilities and customer reviews.
Project #4	Utilize David SLS-3 scanner and pre-programmed inspection software.	Reduced inspection time. The free to download, GOM Inspect, better communicates with the SLS scanner. Able to scan both medium and small sized scan volumes with a high degree of point cloud accuracy.
Project #5	Utilize Makergear M2 to print custom production fixtures.	Better ergonomics and consistency of hand deburring operations. By utilizing custom fixturing, operators are able to produce more consistent work, with less fallout.
Project #6	Implement re-training and better initial training, and regularly perform measurement system analyses.	Resolution of measurement errors that were a byproduct of lack of training and attention to detail.
Project #7	Utilize FARO Cobalt Array Imager for in process and final inspection.	Improved portability, file compatibility, and better software capabilities.
Project #8	Recommendations provided during the walk-through.	Increased robustness of fixturing,
Project #9	Utilize a Dremel Micro rotary cutting tool to trim excess carbon fiber material.	Higher quality cuts, reduction in cycle time, and better operator ergonomics for the operator.
Project #10	Develop inspection programs for the OGP Multi-Sensor CMM.	Reduced inspection time and less variation in inspection technique by using automated inspection protocols.
Project #11	Utilize the Cognex DS 1000/ Model DS1050 to take continuous measurements of extruded material.	Output data in a format that can be read by 3rd party SPC systems while cost-effectively providing needed field of view, depth of field, accuracy of measurement, measurement resolution, and measurement frequency.
Project #12	Apply Structured Light 3D Scanning. Download the GOM Inspect Software.	Identification of dimensional mold issues prior to molding first article samples by comparison to a Computer Aided Drafting (CAD) model. The GOM Inspect enables better communication with the scanner.
Project #13	Utilize the Dataq EL-WiFi-DTC Data Logger for wireless temperature monitoring during molding operations.	Robust and cost effective management of temperature accuracy, during manufacturing.

3.2 Supplier Project Summaries

Supplier improvement projects included equipment recommendations, measurement system analyses, and process-specific investigations. The following subsections are summaries of the thirteen individual projects performed for four suppliers (identified here as Suppliers A thru D).

SUPPLIER A

SUPPLIER A supports a prime contractor including for a large, on-going DoD contract. It produces support equipment including a tool management system. The tool management system consists of a large tool chest with multiple slide-out drawers and a computer interface. Using Radio Frequency Identification (RFID) technology, the system can determine whether a tool is missing from the drawer or if it was placed back in the wrong location. The purpose of this system is to prevent the loss of support tools, and specifically to prevent tools from being left within equipment being serviced. When a tool management system is purchased it must be customized to the specific tool sets of each customer. This has to be performed onsite and requires customers to ship their tools to SUPPLIER A for processing. This process at the supplier can delay equipment servicing requiring use of the tools.

Project 1 – The supplier project found that by use of 3D scanning, SUPPLIER A could improve the quality of tool profiles, while also reducing cycle time. 3D scanning techniques would allow SUPPLIER A to accomplish multiple process steps automatically while providing more accurate data for subsequent operations. This could lead to better fitting tool profiles that prevent tools from losing contact with their RFID sensors. By utilizing a 3D scanner that is portable, this operation could be performed at the customer's location, leading to reduced downtime equipment servicing activities. The end goal of this project was to determine a suitable choice of 3D scanning equipment that would allow SUPPLIER A to create accurate tool profiles. The selected 3D scanner needed to be robust enough for use in a manufacturing environment and sufficiently portable so that it could be used at a customer's location. In order to ensure an objective recommendation, a weighted ranking based on industry-wide trade practice was performed to identify the top contending systems. Various 3D scanning systems were evaluated based on field of view, depth of field, point cloud spacing, point cloud accuracy, exposure time and price. The top 3 systems were then further evaluated based on additional factors such as portability, file compatibility, and customer reviews. Based on the results of this analysis, Draper made a technical recommendation for SUPPLIER A to utilize the David SLS-

3 scanner. In addition to this 3D scanning equipment recommendation, Draper evaluated inspection software for use when deriving dimensional measurements from scanned data. The results of this evaluation determined that GOM Inspect was a good option for SUPPLIER A. This software allows users to make point-to-point dimensional measurements from scanned point clouds, to calculate depth profiles, and to use "CAD compare" to determine deviations of data from an object's scan relative to its corresponding Computer Aided Drafting (CAD) model.

Project 2 - The current SUPPLIER A process for embedding RFID sensors in tools requires extensive training and relies on visual aids for acceptance. This supplier project found that the embedding process could be improved by evaluating alternative epoxy types and using 3D printing techniques to encapsulate RFID components prior to being embedded in tools. The first step in this evaluation was to identify alternative epoxies that could satisfy SUPPLIER A's use case. Research focused on putty-based epoxies as they would be easiest to use for this application. From this research, three epoxy candidates were identified and evaluated, including the epoxy currently used by SUPPLIER A. Bond strength, cycle time, and ease of use were all considered. The bond strength was evaluated using lap shear tests in accordance with ASTM D1002[2]. A key differences between the 3 epoxies under evaluation was the working time before hardening. While the existing epoxy had a work time of 15 minutes, both of the putty-based epoxies had work times of 3-5 minutes. The feasibility of encapsulating RFID components using 3D printing techniques was evaluated. Encapsulations were made and successfully printed for all components provided for consideration by SUPPLIER A. The cycle time of the embedding process was then evaluated for all 3 epoxy types, as well as encapsulated and non-encapsulated components. This evaluation showed that the cycle time was greater for all putty based epoxies compared to the current epoxy. However, it also showed that regardless of epoxy type, the encapsulation of components within a 3D printed structure led to a decrease in cycle time. This was shown able to reduce cycle time by 34% when using the current baseline epoxy. Consequently, a technical recommendation was made to Supplier A to follow a process within which RFID components would be encapsulated in 3D printed structures.

Project 3 – Given the technical recommendation resulting from Project 2, the next step was to determine the optimal choice of 3D printing equipment to satisfy SUPPLIER A's use case. A suitable 3D printer would need to be robust enough for use in a manufacturing environment and capable of

[2] This is a standards document that can be purchased at the following web site: https://www.astm.org/Standards/D1002 htm

producing high quality, small-sized prints. To ensure an objective recommendation, the same method of weighted ranking as used in Project 1 was performed to identify the top contending systems. Various 3D printing systems were evaluated based on layer height, build volume, materials used, heated bed capability, dual extrusion capability, and price. The top 3 systems were then further evaluated based on additional factors, including software capabilities and customer reviews. Draper made a technical recommendation that SUPPLIER A utilize the Makergear M2 for encapsulation of components used in their tool management systems.

SUPPLIER B

SUPPLIER B is a small sized manufacturing facility that supports a prime contractor including for a large, on-going DoD contract. Its primary operations include hand and mechanically-assisted deburring, as well as other types of hand finishing. SUPPLIER B handles parts from a few mm in diameter up to several feet across for A&D manufacturers as well as medical device customers. Nearly all SUPPLIER B operations are manual processes using specialized rotary tools and belt sanders. Most inspections are either visual or performed using indirect measurement techniques. Some of these inspections are on safety-critical components. SUPPLIER B is currently required to inspect finished assemblies with a high degree of accuracy. The method in current use applies various go/no-go gages to visually determine finished part acceptance. This acceptance method is both time consuming and very dependent on operator training.

Project 4 – The project found that by implementing the use of 3D scanning, the inspection of deburred components could be more robust and efficient. The current part inspection process takes several hours, including creation of molds of critical features to measure on an optical comparator. With use of a 3D scanner and pre-programmed inspection software, SUPPLIER B could reduce part inspection time to under 1 hour. Selected equipment would need to be able to scan both medium and small sized volumes with a high degree of point cloud accuracy. To ensure an objective recommendation was achieved, the same method of weighted ranking as used for Supplier A projects was applied to identify top contending systems. Various 3D scanning systems were evaluated based on field of view, depth of field, point cloud spacing, point cloud accuracy, exposure time and price. The top 3 systems were then further evaluated based on portability, file compatibility, software capabilities, and customer reviews. Based on the results of this analysis, Draper made a technical recommendation that SUPPLIER B utilize the David SLS-3 scanner for in-process part inspection and the development of production fixtures. In addition Draper evaluated inspection software that could be used to derive dimensional measurements from scanned data. The focus of this evaluation

was on open source/freeware options that could perform measurements of a controlled radius. The evaluation determined that GOM Inspect was a good option for SUPPLIER B. The GOM Inspect software is free to download and accepts file formats output by the recommended 3D scanner. This software allows the user to make "point-to-point" dimensional measurements of the scanned point cloud, to best fit the measurements to a cylinder to derived radius measurements, and to directly compare the deviations of a scanned object's measurements to its corresponding CAD model.

Project 5 – This supplier project addressed custom fixturing. Many of SUPPLIER B's operations consist of manual deburring by hand using rotary tools and belt sanders, sometimes on complex geometries and very small parts. By utilizing custom fixturing, operators would be able to produce more consistent work, with less fallout. Fixturing for complex parts can be created with quick turnaround times using 3D scanning technology as recommended in Project 4 along with 3D printer additive manufacturing techniques. A selected 3D printer would need to be robust enough for use in a manufacturing environment while also being capable of producing high quality, small-sized prints. In order to ensure an objective recommendation was achieved, the same method of weighted ranking as applied in Project 4 was performed to identify the top contending systems. Various 3D printing systems were evaluated based on layer height, build volume, materials, heated bed capability, dual extrusion capability, and price. The top 3 systems were then further evaluated based on software capabilities and customer reviews. Based on the results of the analysis, Draper made a technical recommendation that SUPPLIER B utilize Makergear M2 to 3D print custom production fixtures for better ergonomics and consistency during hand deburring operations.

Project 6 – During an initial on site visit, Draper determined that none of SUPPLIER B's measurement systems had been adequately qualified with a Gage R&R or similar gage study. Performance of Measurement System Analyses (MSA's) at critical inspection points would allow identification of specific measurement techniques now followed that needed improvement or warranted further worker training. During an initial process walk-through, four critical inspection points were identified that would benefit from MSA. Two types of MSA's were performed on these four inspection points based on the type of measurement systems applied: Gage R&R's; Attribute Agreement Analyses (AAAs). Gage R&R's were deemed to be suitable if the total variation of tolerance was 20% or less. Up to 30% of tolerance can be considered marginally acceptable for non-

critical applications. AAAs were evaluated based on the Fleiss' Kappa statistic[3] calculated by MiniTab. This statistic is an overall measure for reliability of agreement between operators for categorical measurements. In order for a measurement system to be considered acceptable, it must have a Fleiss' Kappa Statistic of 0.8 or greater. Based on the results of the 4 MSAs, the study found that operators could measure consistently against themselves, but did not match other operators. This indicated that there was a lack of consistent training, or that re-training was not being performed sufficiently often. Draper made a technical recommendation for improvements in SUPPLIER B's inspection technique training to improve inspection reproducibility.

SUPPLIER C

SUPPLIER C is large manufacturer that produces carbon fiber assemblies, as well as integrated ice protection systems. It supports prime contractors, including for on-going DoD contracts.

Project 7 - SUPPLIER C currently inspects its assemblies both in process and during final inspection. The lead time to fully inspect assemblies is a bottleneck for their delivery. SUPPLIER C expressed interest in reducing this inspection time to reach a goal of inspecting multiple assemblies per week. Utilization of a Structured Light 3D scanner for inspection of assemblies would allow for faster and more robust inspection compared to the current method. A selected 3D scanner would need to be robust enough to use in a manufacturing environment, have sufficient accuracy and resolution for part acceptance, and provide a faster cycle time than the current method. In order to ensure an objective recommendation was achieved, the same method of weighted ranking as used in the other supplier studies was performed to identify the top contending systems. Various 3D scanning systems were evaluated based on field of view, depth of field, point cloud spacing, point cloud accuracy, exposure time, and price. The top 3 systems were then further evaluated based on portability, file compatibility, software capabilities and customer reviews. Based on the results of this analysis, a technical recommendation was made for SUPPLIER C to utilize the FARO Cobalt Array Imager for in-process and final inspection.

Project 8 - During the initial on-site visit, several critical inspections were observed utilizing both custom fixturing and a portable CMM touch probe. An MSA was performed using the same methods

[3] See the following website regarding use of Fleiss' Kappa statistic in this application: https://support.minitab.com/en-us/minitab/18/help-and-how-to/quality-and-process-improvement/measurement-system-analysis/how-to/attribute-agreement-analysis/attribute-agreement-analysis/interpret-the-results/all-statistics-and-graphs/kappa-statistics/

as operators used during normal operations. MSAs evaluate the test method, measuring instruments, and the entire process of obtaining measurements to ensure the integrity of data used for analysis. It allows the user to understand the implications of measurement error for decisions made about the process. Depending on whether the measurement data was viewed as variable or attribute (pass/fail) based, MSAs were performed using the Gage R&R or AAA methods respectively. For the Gage R&R method, 96 data points were evaluated. This consisted of 2 operators each performing 2 replicates of measurement across 24 samples. For each measurement, the operators assessment was recorded and populated into MiniTab 16 Statistical Software for analysis. In addition to the Gage R&R, the same 96 data points were evaluated as attribute (pass/fail) data via an AAA. In order to evaluate these measurements as attribute data, each data point was compared against its respective tolerance to categorize it as either pass or fail. Attribute data was also populated into MiniTab 16 Statistical Software for analysis. Based on the results of the AAA, it was determined that the current inspection technique was suitable for the purpose of accepting or rejecting product. The passing acceptance criteria indicated that the inspection technique could reliably discern between a pass or fail condition. The results of the Gage R&R's, however, indicate that the measurement technique was not robust enough to produce reliable variable data. This means that the measurement data collected can be used to accept or reject product, however, variable data could not be used for trending assessment or analysis. Any trending assessment or analysis based on this data could lead to invalid conclusions about the product or process. Based on the results of the Gage R&R and AAA, several technical recommendations were made to SUPPLIER C for improvement to increase the robustness of fixturing used during the inspection.

Project 9 - Operators are currently required to trim excess carbon fiber material from stacked sub-assemblies prior to molding. This is a manual process that is time consuming and poses ergonomic risks to the operators. This process could be improved by partially automating the trimming of material. Partial automation could include use of electric shears or rotary tools to reduce the time and ergonomic strain of the process. Draper assessed the feasibility of using the Dremel Micro rotary cutting tool for the trimming of carbon fiber subassemblies. The performance of the Dremel Micro rotary cutting tool was compared to the existing process. The following criteria were evaluated to determine a final recommendation:

- The cycle time of each cutting process under evaluation.
- The quality of cut - all cut samples were reviewed with SUPPLIER C to assess the amount of fraying based on standard in-process acceptance criteria.

- The length of cut.
- Ease of use as reported by the engineers performing the evaluation.

A test procedure was developed to assess the feasibility of using the Dremel Micro rotary cutting tool to trim excess carbon fiber material and to compare its performance with the existing process. Fixturing templates were developed to hold the carbon fiber material in place for more consistent test cuts. Both flat and curved fixturing templates were developed to support two different use cases.

Based on test results, Draper made a technical recommended that SUPPLIER C utilize a Dremel rotary cutting tool for the trimming of excess carbon fiber material from sub-assemblies. The Dremel based cutting method reduced cycle time. It was also more ergonomic for the operator which resulted in a higher quality of cut. Some issues were observed with both cutting methods, but applicable conditions were reviewed with SUPPLIER C and corrected with standard rework.

SUPPLIER D

SUPPLIER D has a medium sized manufacturing facility that specializes in molded rubber, metal bonded rubber and composite materials. It has a strong focus on research and development of new materials for demanding environments. SUPPLIER D controls all levels of production from incoming materials testing through final inspection. It has recently undertaken several Lean Manufacturing initiatives in an effort to obtain preferred status with a prime contractor. The products manufactured by SUPPLIER D include injection molded rubber/elastomer components, embedded fabrics, or a combination of both to form complex assemblies. Most products are produced on shared equipment.

Project 10 - SUPPLIER D currently owns an OGP Multi-sensor CMM that is not being utilized for automated inspections. For high volume products or features that require 100% inspection, an automated protocol could reduce inspection time and variations in the inspection technique. 3D printed fixtures (used to align parts to the OGP's "home" datum) can also be utilized to reduce inspection setup time. This project sought to determine the feasibility of using SUPPLIER D's OGP SmartScope for automated dimensional inspection, and to determine whether attribute defects (e.g. voids) could be detected by this system. Draper assessed the feasibility of performing automated dimensional inspections of provided O-rings from SUPPLIER D by measuring sample parts with an OGP representative at the D. Beck Company. This analysis determined that automated dimensional inspection is a feasible option using unconstrained fixturing and predetermined offsets to ensure alignment with OGP's home datum. Once an automated protocol was developed/programmed by the D. Beck Company, the same protocol could be executed each time an inspection would be required.

Based on the analysis performed by Draper, a technical recommendation was made that SUPPLIER D utilize the OGP SmartScope for automated dimensional inspection of O-rings. Automated dimensional inspection was determined to be feasible for the samples that were provided and an authorized OGP representative would be able to develop applicable inspection programs. Fixtures were also developed and a quote for associated programming costs was obtained and provided to SUPPLIER D.

Project 11 - For continuous-flow rubber extrusion, SUPPLIER D is currently only able to perform dimensional measurements once the material had already been produced. By implementing a non-contact vision system, SUPPLIER D could make continuous measurements which could then be incorporated into a SPC system in real time. Frequent measurements could also provide a representation of short term process trends. The system would need to output data in a format that could be read by third party SPC systems and to provide a specific measurement accuracy defined by SUPPLIER D. Also, the system would need to be capable of taking measurements in multiple planes. The selected system would also need to be able to operate in a high temperature environment to allow for placement near locations where rubber vulcanization is accomplished. Candidate systems were evaluated for field of view, depth of field, accuracy of measurement, measurement resolution, feasible measurement frequency and price. To ensure an objective recommendation, the same method of weighted ranking as used in the other supplier projects was performed to identify the top contending systems. Based on the results, a technical recommendation was made that SUPPLIER D utilize the Cognex DS 1000/ Model DS1050 to enable continuous measurements of extruded material. The Cognex company has a well established reputation for customer service, technical support and troubleshooting. Based on the intended use case, a technical recommendation was also made that SUPPLIER D incorporate a roller guide support to minimize movement of the extruded material within the vision system field of view.

Project 12 - All of SUPPLIER D's molds are machined out of house and then qualified prior to production use. The current qualification process involves setting up for a full production run, and then producing First Article samples which undergo 100% inspection. If a defect is found, an investigation must then be done to determine whether or not the mold dimensions were the root cause of the defect. By implementing the use of Structured Light 3D Scanning, SUPPLIER D could determine if any dimensional mold issues exist prior to molding First Article samples. The "as-built" mold could then be 3D scanned and compared to a CAD model to determine if any discrepancies exist. This tool could also be used to measure mold wear over time for Preventative Maintenance.

The selected 3D Scanning equipment would need to be robust enough for use in a manufacturing environment and have sufficient accuracy for comparing scanned mold dimensions to their corresponding CAD model. To ensure an objective recommendation, the same method of weighted ranking as used in the other supplier studies was performed to identify the top contending systems. Various 3D scanning systems were evaluated based on field of view, depth of field, point cloud spacing, point cloud accuracy, exposure time and price. The top three systems were then further evaluated based on portability, file compatibility, software capabilities and customer reviews. Based on the results of this. A technical recommendation was made that SUPPLIER D implement the Artec 3D Space Spider for mold qualification. Draper also performed an evaluation of inspection software that could be used to perform dimensional measurements using scanned data. The results of this evaluation determined that GOM Inspect was a good option for SUPPLIER D. The GOM Inspect software is free to download and accepts file formats output by the recommended 3D scanner. This software would allow a user to take "point-to-point" dimensional measurements of the scanned point cloud and to directly compare the deviations of a scanned object to its corresponding CAD model.

Project 13 - SUPPLIER D currently utilizes multiple heated presses for molding operations, but does not have a way to retain and analyze temperature data from this process. Also, if the temperature currently goes out of range during a production run, there is no direct way to know when a temperature excursion occurs without an operator being physically present to observe. By implementing a wireless temperature monitoring system, SUPPLIER D could access temperature data, trend the data for SPC analysis, and generate alerts when temperatures go out of a specified range. This update would provide additional process controls, preventing defects. The objective of this project was to determine the suitable choice for wireless temperature monitoring equipment that would allow SUPPLIER D to remotely monitor and record "Time vs. Temperature" data. A selected system would need to be robust enough for use in a manufacturing environment, provide wireless transmission of temperature data, and have the capability for extension to multiple machines. To ensure an objective recommendation, the same method of weighted ranking as used for the other suppler projects was performed to identify the top contending systems. These systems were evaluated based on several factors including temperature accuracy, temperature resolution, sampling rate, expandability, means to graph/display data in real time, temperature alarm features and cost. Based on the results of both an objective and subjective analysis, a technical recommendation was made that SUPPLIER D implement the Dataq EL-WiFi-DTC Data Logger for wireless temperature monitoring during molding operations. This system is robust enough for use in a manufacturing environment, satisfies all requirements provided

by SUPPLIER D and provides additional features to increase process control (e.g., text/email alerts for alarm conditions, access to data from any machine on a WiFi network, and on board memory to prevent data loss). This system is scalable and is capable of supporting all of SUPPLIER D's current equipment.

3.3 Additional Supplier Visits

In addition to the four suppliers listed above, four additional on-site supplier visits took place without leading to dedicated study projects, as summarized below.

- During an on-site visit to SUPPLIER E, a determination was made that this company only receives finished goods from lower level suppliers, which it then inspects and provides to a prime contractor. Since no physical part processing takes place at this facility, no value added projects were identified and pursued by Draper. However, SUPPLIER E recommended discussions with one of their lower level suppliers who was deemed to have multiple opportunities for improvement, based on recently experienced quality issues.
- An on-site visit took place at SUPPLIER F. This is the lower level supplier identified by SUPPLIER E. Several candidate improvement projects relating to inspection equipment and metal based 3D printing were identified. A draft Letter of Intent and draft a draft NDA were provided by Draper to SUPPLIER F, however, agreement on these documents was not reached, and Draper was informed that SUPPLIER F did not have time available time to undertake such studies.
- An on-site visit took place at SUPPLIER G, which identified three candidate improvement projects relating to inspection of large diameter assemblies. However, during the process of negotiating a Letter of Intent and an NDA, SUPPLIER G was acquired by another company and was no longer able to participate.
- An on-site visit took place at SUPPLIER H which identified seven candidate improvement projects. Despite a strong interest from SUPPLIER H's General Manager, the company owner did not wish to participate. (Draper was subsequently informed that the owner had passed on similar State funded initiatives in the past).

Although these 4 suppliers did not pursue dedicated studies with Draper, the initial Draper findings resulting from the on-site visits were still provided to the suppliers so that they could be considered by the suppliers for implementation independently.

4. Lessons Learned

The following insights were derived upon considering information gathered and findings made during the course of performing the individual supplier projects.

- **Direct on-site engagement with suppliers has high value**. While most large A&D manufacturers have dedicated teams to support continuous improvement, SMEs typically do not. Consequently, improvements must be performed as side tasks that do not disrupt daily production needs. By engaging directly on site with SME suppliers, improvement discussions can take place without taking critical personnel away from the manufacturing floor. This increases receptiveness to improvement discussions. Also, most improvement efforts require direct knowledge of the manufacturing processes under evaluation. Walking through the manufacturing process on site enables first hand observation of applicable issues, saving valuable time in ensuing discussions.
- **The ACM yearly conference provides an efficient opportunity for the state to engage directly with the A&D supply chain.** A common issue throughout the individual supplier projects was a lack of awareness among the A&D supply chain of state-funded initiatives in advanced manufacturing. Nearly all the A&D manufacturers with which Draper engaged attend the yearly ACM conference, typically with both management teams and engineering, allowing for collaborative discussions. This is an efficient platform for the state to use to increase awareness by individual companies of state-funding opportunities,. It can also be used by the state to gain insight regarding challenges being faced by these companies in order to maximize the value to the companies of future state initiatives.
- **It is beneficial to introduce a neutral organization into supplier improvement initiatives.** Due to the competition between suppliers in the A&D industry, it is essential that improvement initiatives be led by a neutral organization, one that is knowledgeable in applicable technical disciplines, but is not seen as a competitor. This is necessary to establish a level of trust needed during substantive technical improvement discussions.
- **NDAs are necessary but impose documentation restrictions**. Even though Draper was not seen by suppliers as a competitor, a significant challenge to pursuing individual supplier projects was getting executed NDAs in place prior to beginning work. Subsequently it is mandatory to prevent dissemination of any supplier's proprietary competitive information. This means that it is necessary that specific supplier identification and all applicable supplier proprietary information be removed from project summaries provided to the

sponsoring agencies. Having the added level of assurance provided by executed NDAs that proprietary and competitive information will not be released makes suppliers more comfortable about participation in the program.

- **Automation of inspection is a major improvement opportunity for many SMEs, but with implementation challenges.** Automation technology for non-contact and non-destructive inspection provides time and cost saving opportunities for most SME suppliers. While many now rely on visual inspection and manual measurements, off-the-shelf systems such as multi-sensor CMMs or Structured Light 3D scanners can perform the same measurements with greater accuracy in a fraction of the time. While these systems can generate substantial, and cumulative cost savings, many SMEs have difficulty addressing upfront equipment cost. Also, these automated systems must be fully integrated into a manufacturing line to realize full cost saving potential. Integration poses the greatest challenge for small suppliers because of the implementation time commitment and technical challenges that can impact short-term output (and cash flow). By helping to connect members of the A&D supply chain with 'system integration' firms, the technical and time burdens associated with incorporating automated inspection equipment into existing manufacturing lines can be reduced.

Acronyms and Symbols

AAA	Attribute Agreement Analysis
ACM	Aerospace Component Manufacturers
A&D	Aerospace and Defense
CAD	Computer-aided Drafting
CCAT	Connecticut Center for Advanced Technology Inc.
CMM	Coordinate Measurement Machines
Cpk	Process Capability
DECD	Department of Economic & Community Development
DMAIC	Define, Measure, Analyze, Improve, Control
DoD	Department of Defense
FOV	Field of View
MSA	Measurement System Analysis
NDA	Non-Disclosure Agreement
RADE	Regional Aerospace & Defense Exchange
RFID	Radio Frequency Identification
R&R	Repair and Return
SME	Small to Medium Enterprise
SPC	Statistical Process Control
SSA	Specialized Service Agreement

Glossary of Terms

Additive Manufacturing: a process where material is added in layers (e.g., 3D printing)

Lean Manufacturing: systemic method to mitigate waste in a manufacturing setting

Prime Contractors: the main, first tier manufacturer

Process Control: the ability to which a product can be manufactured consistently and accurately

Supply Chain: sequence of connected companies making parts for the same product

Three Horizons: a model for implementing innovation through sustainment, disruption, and transformation

RADE II, Task 5 Report
Volume II: Best Practices of Manufacturing Innovation and Technologies Report

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In order to obtain the most candid feedback from Original Equipment Manufacturers (OEMs), Prime Contractors, Consortia, Educational Institutions, and Suppliers, interview information for this report has been developed and incorporated under non-disclosure agreements, thus, preventing attribution of comments to any specific individual or organization.

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Executive Summary

Background

Since 2015, The Charles Stark Draper Laboratory, Inc. (Draper) has worked with the Connecticut Department of Economic & Community Development (DECD) to formulate recommendations for strengthening the competiveness of the Connecticut Aerospace and Defense (A&D) industry. A&D is critical to national security, provides 24% of the state's manufacturing gross domestic product, and creates many high-paying jobs. However, the industry is subject to rapid technological change. Some A&D companies have relocated to other states as part of industry consolidation and cost reduction efforts.

This document (Volume II of the project report) addresses how to ensure A&D stays competitive and thrives within the state. Analysis of A&D issues and advice regarding state policies were within the scope of Draper's study. Connecticut's A&D needs were framed, information was gathered from stakeholders, and actionable, strategic recommendations were derived. The study was done within a Porter's Five Forces framework, and accounts for three planning time horizons. Efficiency improvements for the supply chain using hands-on sample projects are covered in Volume I of the project report.

Customer Needs and Resulting Issues

A premise of this study is that the more Connecticut is aligned with the Department of Defense (DoD) A&D needs, the stronger the A&D industry will be within the state. This alignment requires sustained means to provide solutions to DoD needs that drive our technological superiority and can be supplied by trusted sources.

A&D customers expect the industry to innovate quickly to keep up with constantly evolving needs in the field by leveraging more sources of innovation. For example:

- by applying or converting commercial technologies to DoD applications,
- to have technology separation and foundational platforms provided by trusted suppliers, and
- to develop associated systems that address modernization over the typical thirty year lifecycle without requiring undue cost or platform downtime.

The future success of the A&D industry will depend on demonstrating specific Manufacturing Readiness Levels (MRLs). MRLs are a way to assess the readiness of a manufacturer to proceed with production, and are used to reduce the likelihood of program production process failures due to performance deficiencies or cost overruns. Proof of MRL maturity is a part of many new DoD

contracts. Program continuation gates may also be included in contracts, depending on proof that specific, higher MRLs have been realized since the start of the program. Furthermore, compliance with SAE AS6500 manufacturing management requirements may be mandated. It is essential that A&D manufacturers track their MRL status and SAE AS6500 compliance, yet this study identified a need to raise awareness of MRL and AS6500 compliance requirements within Connecticut's A&D supplier base.

Other important emerging A&D industry trends include:

- an increasing reliance on digital threads that introduce new cyber vulnerability pathways, necessitating a parallel focus on cybersecurity throughout the entire manufacturing supply chain, and
- the introduction of new processes such as additive manufacturing.

Tied to evolving manufacturing digital threads is Industry 4.0, a trend that applies the Internet of Things (IoT) to enable intelligent manufacturing through the use of robotics, data analytics, horizontal and vertical integration, advanced manufacturing methods, simulation and augmented reality.

The benefits of Industry 4.0 include an architecture supportive of on-going efficiency improvement and innovation. However, adopting Industry 4.0 practices will necessitate investments in cyber resilience, capitalization of new manufacturing infrastructure, and a fundamental change in workforce skills.

Market Positioning

Porter's Five Forces analysis was applied to identify in-state A&D manufacturing drivers (powers) and threats. Supplier power in the state is broadly based. Buyer power comes from the DoD and prime contractors. Threats exist from other states, nations, and new entrants like venture capital-owned suppliers. Based on this analysis, potential "threats" to Connecticut's A&D market position were determined to be:

- **Industry Rivalry:** Other eastern states (i.e., Georgia, South Carolina, Massachusetts) who have increased their market share and expanded into the global market
- **Buyer Power:** Increased compliance requirements being imposed on the full supply chain are a threat to the agility and speed of innovation for the A&D market. Transitioning commercial products to DoD applications can also become a challenge with additional compliance requirements.

- **Supplier Power:** Workforce capability and capacity, diminishing sources, and connecting manufacturing innovation sources/centers with manufacturers
- **New Entrants:** Venture capitalist (VC) investment in Small to Medium Enterprises (SME) in A&D manufacturing
- **Substitutes:** Remaining traditional or commodity manufacturing services found elsewhere

Stakeholder visits were used to support the assessment. Some stakeholders were found to have limited knowledge of the priorities and needs of other stakeholders (internal rivals), and even less awareness of future DoD (Buyer) needs. This awareness gap affects insight into likely impacts of manufacturing trends and could adversely affect formulation of applicable workforce ("Supplier") training curriculum.

Countering Competitive Forces: Connecticut's Discriminators and Core Competencies

Important aids to countering competitive forces are CCAT and the Connecticut Advanced Manufacturing Initiatives (CAMI), both of which facilitate educational outreach and technology integration into the A&D industry. These organizations identify evolving industry challenges and support mitigation strategies for the state.

CCAT is a major contributor to fostering relationships between stakeholders by showcasing the latest manufacturing equipment, and by working with educators and manufacturers to develop well-suited vocational curriculum and associated job placement.

Core competencies in the state are a strong mix of traditional and advanced manufacturing, supporting vocational education, and the presence of some large prime contractors and OEMs. Connecticut is well-positioned to meet the DoD needs for trusted domestic manufacturing capabilities.

Connecticut's Three Strategic Horizons: Sustain, Disrupt, Transform

This study used a three-horizon model to formulate a progressive set of strategic recommendations. The first horizon is a short-term sustainment strategy. The second horizon targets medium-term disruptive innovation. The third horizon is a long-term transformational strategy aimed at future customer needs.

I. **Sustaining Connecticut's Manufacturing Base:** Work under this study provided near-term improvements to manufacturing processes, with particular attention directed towards the increased production and quality demands for current major DoD programs. During Phase 1 of this study, 13 supplier improvement projects were performed seeking areas for

improvement in scrap reduction, process optimization, and/or throughput increases. These projects resulted in new, cost-effective equipment recommendations, measurement system improvements, and process-specific upgrades. Early in Phase 2 of this study, the need for increased educational capacity became evident. It also became clear that awareness and appeal of the A&D industry in general, and manufacturing in particular, needs to be broadened.

Note: The alternative equipment assessment for CCAT and the supplier improvement projects are addressed in Volume I of this report.

II. **Connecticut's Competitiveness through Disruptive Innovation:** Certified supplier growth will be necessary to enable Connecticut's competitiveness in the A&D Industry. Prime contractor needs include: Staff training for clearance holders, security practitioners, and export control managers; maintaining alignment with government regulations, requirements, and opportunities; and participation in urban and infrastructure planning to maintain synergy with the state. Workforce preparation will require inclusion of export control training and security practices, including preparation for applying for clearances.

III. **Transforming and Leading the A&D Industry:** By implementing new technologies addressing emerging customer needs, Connecticut's A&D sector will not only thrive, it will become an industry leader. This transformation will require the industry to integrate advanced technology to support both legacy systems and new capabilities. Connecticut is rich with innovation and educational resources to facilitate this transformation, and has already taken proactive steps in this direction.

Key Recommendations

The key recommendations of this study are as follows:

Strengthening the Trust of the Connecticut Industrial Base and Adopting Disruptive Technologies

- Raise awareness of future A&D industry needs among the small to medium enterprises
- Take advantage of resources that provide innovation and educational program awareness, including: Memberships in the 14 DoD-sponsored Manufacturing USA innovation institutes; MRL training by the DoD or use of trained assessors for follow-on A&D company training
- Proactively address important industry trends including: Advances in additive manufacturing; use of digital threads for integrated manufacturing; and advanced cyber security/resilience methods which address digital thread cyber vulnerabilities

Strengthening the Infrastructure and Buying Appeal of the Connecticut A&D Industry

- Facilitate financing of new equipment for suppliers
- Encourage pursuit of new Defense Production Act (DPA) Title III funding for critical defense capabilities that represent diminishing sources within Connecticut
- Incentivize in-state production of advanced manufacturing tools—"Bridgeport" was once synonymous with advanced machining
- Attract privately funded research centers that draw in technology-centric industry clusters
- Support subsidies for: New-technology A&D business; certified suppliers; capitalization for equipment modernization; advanced manufacturing training; industrial base diversification

Strengthening the Workforce:

- Continuously adapt the Connecticut education to changing A&D workforce skill requirements. Include new cyber security/resilience career paths
- Simplify certification for vocational instructors with career A&D manufacturing experience
- Start public school student exposure to A&D manufacturing career opportunities and needs at an early age to enable subsequent pursuit of necessary educational pre-requisites
- Offer state-sponsored training regarding MRLs, clearance preparation, and export control requirements to prepare the SMEs for compliance

1. Introduction

In September 2015, The Charles Stark Draper Laboratory, Inc. (Draper) was contracted by the Connecticut DECD to provide technical advisory services for the Regional Aerospace Defense Exchange (RADE) Phase 2 Program established by the DoD, serving as a partner to the state.

During the first phase of the contract, Draper performed supplier improvement projects to address process efficiency, providing recommendations for improvement to a group of small- to medium-sized suppliers. During the second phase of the contract, Draper held interviews and workshops with manufacturing industry stakeholders including DoD personnel, regional prime contractors, major suppliers, advanced manufacturing institutes, and technical educational institutions. Draper then formulated actionable recommendations for strengthening the competitiveness of the Connecticut A&D Industry based on the supplier projects and subsequent stakeholder interchanges.

1.1. Motivation

The A&D industry is technologically advanced and has measurable impacts on the economy and national security of the United States. Within Connecticut, A&D manufacturing comprises 24% of the state's manufacturing Gross Domestic Product (GDP) and nearly 5% of the state's total GDPi. It is important that Connecticut nurture, sustain, and grow the A&D manufacturing base within the state to benefit the local economy and to serve and respond to national needs. However, A&D technological change is rapid and ongoing. For A&D manufacturing to continue to succeed and grow in Connecticut, the industry must keep pace with, or take a leadership role in addressing, technological advancement while having assured, local access to a large, trained workforce well prepared to adapt to this technological evolution.

This document summarizes the findings of the Draper study specifically aimed at addressing how the Connecticut A&D manufacturing industry can (1) sustain its base, (2) remain competitive, and (3) thrive and lead the industry in its core capability areas. A&D technology trends and their long-term implications, workforce needs, means to improve supply chain efficiency, and best practices were part of this study. Concerns in these areas motivated development of a strategy to strengthen the competitive posture of Connecticut in the near-term while laying the groundwork for establishing the state as an A&D manufacturing leader well into the future.

1.2. Objectives and Success Criteria

This study was performed in the context of a national A&D industry demonstrating *a willingness to relocate production facilities and headquarters to different states based on the effects of industry consolidation, expectations of production cost advantages, and access to clusters of facilities pursuing technological advancement*. Past examples of this phenomenon include the relocation of missile and rocket production from California to Arizona and Alabama (as a result of parent company consolidation), the aggregation of Pratt & Whitney's liquid rocket engine development and production in Florida, the transfer of Boeing's Headquarters from Washington to Illinois, and the transfer of General Electric's Headquarters from Connecticut to Massachusetts. Analysis of these relocations are not within the scope of this study; however, contributing factors will be discussed. In particular, the study highlights the competitive attributes of the states attracting business migration.

Within this context, the overarching study goal was to provide actionable recommendations for Connecticut to remain an attractive location for A&D manufacturing, with a focus on strengthening and building upon the current indigenous A&D capabilities. Addressing this goal involved consideration of the technological health of the existing A&D industrial base in Connecticut, its technology and personnel needs going forward, and the availability of a ready workforce.

Draper's objectives included:

- Partnering with the Connecticut A&D manufacturing supply chain on special projects to improve supplier quality and efficiency
- Performing analysis of long-term innovation and technological issues impacting the A&D manufacturing sector
- Providing advice regarding technology policy and best practices for the state

The following success criteria were applied against the above objectives.

- Development of actionable recommendations to A&D suppliers for production quality and efficiency
- Meaningful characterization of technological trends that now, or in the near future, will affect the A&D industry and its workforce in Connecticut
- Formulation of impactful actions Connecticut can take to facilitate the technological progress of its A&D industry and the preparedness of a sufficiently large and skilled workforce

1.3. Approach

Draper applied the philosophy that if Connecticut is well-aligned with US DoD A&D needs, then growth and robust, resilient competitiveness will follow. This philosophy manifests in the following approach:

- **Identify Connecticut's need** by understanding DoD needs through background research and Draper's awareness as a trusted government resource, and from face-to-face meetings with US DoD stakeholders
- **Establish frameworks** for the problem and solution space. Draper selected Porter's 5-Forces competitive model (Porter, 1979) to provide context, and then applied the Three Horizons innovation model (Baghai, Coley, & White, 2000) for strategic recommendations
- **Gather information** from relevant stakeholders, including prime contractors, suppliers, and workforce educators. Research gathered during the project include statistics and survey results. The supplier projects results and lessons learned are captured in Volume I of this report. In addition, organizations with different perspectives were interviewed to identify strengths and pain points relative to A&D manufacturing and to identify more general manufacturing capability needs.
- **Assess / analyze aggregated information.** The collected information was analyzed within the aforementioned frameworks, enabling gaps to be identified
- **Document analysis and provide actionable and strategic recommendations** for closing gaps in Connecticut's capability

1.4. Scope

The scope of this study is the A&D manufacturing sector, including government customers, prime contractors, parts/components suppliers, and the workforce. For assessing competitive positioning relative to future needs, A&D manufacturing trends and Research & Development (R&D) capabilities were also within scope.

2. Customer (DoD) Needs Assessment

The more Connecticut is aligned to the DoD's Aerospace and Defense needs, the more likely future work will come to the state. To appreciate what is—and will be—required of Connecticut's industrial base, it is imperative that Connecticut understands the DoD's needs and how well the state and its industry align to those needs. This study notes and addresses gaps in this alignment.

2.1. Current and Future Needs of the DoD: Solution Assurance

The DoD *needs* solutions that work, are affordable, can be sustained, and are available in a timely manner from trusted sources. Confidence in the manufacturing of a product supports the overall assurance of an effective solution, and is achieved by creating the product right, on time, and on budget.

2.1.1. The Defense Innovation Strategy

The DoD is responsible for protecting the nation against foreign threats. Those threats are best *mitigated* by overmatch capabilities that often rely on a technological advantage. Two major components of the Defense Innovation Strategy to sustain and advance American military superiority are the DoD Research and Engineering (R&E) Strategy and The Third Offset.

2.1.1.1. The DoD R&E Strategy

The DoD R&E strategy[1] was established to maintain the nation's technological edge. The *responsive* component of this strategy identifies new or anticipated threats, and then develops capabilities to mitigate them. The proactive component sustains technological advantage by developing and introducing new technologies into breakthrough military capabilities that are unexpected by even the most capable adversaries, and against which they are unprepared and unable to compensate for years.

2.1.1.2. The Third Offset

In recent decades, the DoD twice developed and fielded capabilities to offset the competitive advantage of highly capable adversaries[ii]. The DoD intends to identify and develop a third "offset" strategy to advance the technological superiority of the United States forces over its adversaries[iii]. Prior offset strategies have enabled U.S. technological superiority for decades.[iv]

An offset's scientific basis must be sound, and industry must have the means for its successful implementation and integration into military platforms. Furthermore, there must be confidence that

[1] For an overview of the R&E Strategy, see: http://www.defenseinnovationmarketplace.mil/resources/ASD(R&E)_StrategicGuidanceMay_2014.pdf

offset platforms can be manufactured affordably, and that the result is a product with high reliability for on-demand use. Subject to these criteria, the DoD plans to apply substantial resources over a decade or more to develop a Third Offset. Successful provisioning of a third offset will leverage the Manufacturing Technology (ManTech) program[2] and the National Network of Manufacturing Innovation (NNMI).

DoD Manufacturing Technology (ManTech)

State-of-the-art, healthy, and robust manufacturing is critical to the success of the DoD innovation strategy. Furthermore, such capability must be domestic to pre-empt malicious damage, latent defects, or harmful capabilities that are unknowingly implanted into DoD-utilized parts or systems.

The DoD Office of Manufacturing and Industrial Base Policy (MIBP) has the mission to "ensure robust, secure, resilient, and innovative industrial capabilities upon which the DoD can rely to fulfill the Warfighter's requirement."[3] The MIBP runs ManTech to develop and transition key technologies to address immediate manufacturing needs. ManTech aims to implement affordable, low-risk solutions for the Nation's warfighter and weapon system needs.[4] *The Army, Navy, Air Force, Defense Logistics Agency (DLA) and the Missile Defense Agency (MDA) all have ManTech programs.*[5]

National Network of Manufacturing Innovation (NNMI)

In 2014, the USG stood up the NNMI as a funding vehicle for early MRL product lines. NNMI later became **Manufacturing USA**[6]. Manufacturing USA brings together industrial, academic, and federal partners into a network of advanced manufacturing institutes. The overarching Manufacturing USA goals are to increase US manufacturing competitiveness and to promote sustainable, robust national manufacturing R&D infrastructure. Manufacturing USA includes fourteen innovation institutes, each with a unique focus, but all seeking to accelerate the advancement of US manufacturing.[7]

2.1.2. Cyber Integrity, Trusted Manufacturing, and Manufacturing Readiness

Three emerging DoD cares and concerns that should be of particular interest to Connecticut are cyber integrity, trusted manufacturing, and manufacturing readiness.

[2] For more information on the ManTech program, see: https://www.dodmantech.com/JDMTP/Files/2016_ManTech_Brochure.pdf
[3] See Manufacturing and Industrial Base Policy information at the link: http://www.businessdefense.gov/
4 See: https://www.dodmantech.com/About/
[5] See Manufacturing Technology Program information at the link: https://www.dodmantech.com/ManTechPrograms/
[6] See Manufacturing USA program details at the link: https://www.manufacturingusa.com/pages/program-details
[7] See Manufacturing USA institute information at the link: https://www.manufacturingusa.com/institutes

2.1.2.1. Cyber Integrity

For the purposes of this report, the term 'cyber integrity' encompasses the full scope of cybersecurity/cyber resilience data protection and trusted transactions, providing a secure end-to-end enterprise for all cyber activities. In A&D manufacturing, the cyber integrity enterprise spans from the government acquisition program to the lowest tier supplier, across the entire product lifecycle.

The DoD relies on trusted fabricators to produce parts for defense applications, and trusted fabricators must in turn acquire materials and tools from trusted suppliers. Cyber vulnerabilities can be introduced into manufacturing systems through tools, components, network connections, or firmware. As manufacturing processes become more digitally-dependent, the need for cyber integrity protections grows increasingly vital.

Cyber Integrity is a major concern for the A&D Industry. It will likely emerge as a gating item for contracts with the US Government.

2.1.2.2. Trusted Manufacturing

Over time, the US manufacturing base has been moving offshore, including the production of critical commodities such as batteries and integrated circuits. With manufacturing taking place on foreign soil, the DoD has an even greater need to assure the integrity of the supply chain has not been undermined. Also, many manufacturing tools are being produced in non-allied countries, giving potential adversaries the means, motive and opportunity to negatively impact the integrity of our civil and defense products and systems. Recently, the DoD has made a push for re-establishing domestic, trusted manufacturing sources for key components. The DPA Title III funding program addresses the preservation of critical domestic sources.

2.1.2.3. Manufacturing Readiness

For many years, manufacturing readiness has been evaluated by the DoD with mixed success, depending on the rigor of a company's Production Readiness Review (PRR). Rather than performing these evaluations during an early acquisition phase, they are often performed as late as the production or Engineering & Manufacturing Development (EMD) phases. To standardize manufacturing readiness expectations, the DoD sponsored the development of the MRL process to define criteria for manufacturing readiness.[8]

[8] Through a consortium of DoD Acquisition, Research Laboratory, Contractor, and Educational Organization participants.

Initially, the MRL process was instituted as a guideline, but due to its effectiveness at risk mitigation, elements of the process were incorporated into the SAE AS6500 Manufacturing Management Standard.[9] The SAE AS6500 standard is a specification for manufacturing readiness that will be cited in future A&D contracts.

Manufacturing Readiness Levels (MRLs)

The MRL Deskbook and MRL Criteria Matrix[10] are essential resources for using MRLs, centered on nine (9) MRL threads (A through I). Each thread breaks down into "sub-threads" to provide a next level of detail for examining manufacturing readiness. For more detailed descriptions of each thread, refer to the DoD MRL site: http://dodmrl.org.

The DoD Perspective. MRLs are being included in DoD Acquisition Contracts. This is a result of pervasive issues in the Defense Industry with findings described in the General Accountability Office (GAO) Annual Reports (http://www.gao.gov).[11] *The Connecticut-based A&D supply chain needs to be able to self-assess relative to the MRL criteria to remain competitive in the eyes of the DoD.*

Achievement of specific MRLs has been incorporated into DoD contracts as requirements for contract eligibility.

The A&D Industry Perspective. Tracking MRL status benefits contractors and suppliers by providing early risk identification and mitigation, **characterizing** manufacturing maturity in a common language, and enabling identification of maturity shortfalls along with their associated costs and risks. Self-assessments performed in advance of proposal submissions can identify competitive positioning and areas that need bolstering.

Primes, OEMs, and suppliers will have *minimum MRLs specified as requirements for contract eligibility and as exit criteria on acquisition programs*, implying all will need MRL expertise. Potential impacts include an increase to the cost and schedule of programs, as well as the burden of compliance auditing, which may be difficult for some of the smaller companies to absorb.

SAE AS6500 Manufacturing Management Program

In addition to MRLs, requirements on manufacturing management are being included in Requests for Proposal (RFPs)/contract Statements of Work (SoWs) starting in Government Fiscal Year

[9] The SAE AS6500 Manufacturing Management Standard can be found at: http://standards.sae.org/as6500/
[10] General MRL information, including the MRL Deskbook and MRL Criteria Matrix can be found at: www.dodmrl.org
[11] For an example report, see: http://www.gao.gov/products/GAO-10-439

(GFY)18. These requirements are in the SAE AS6500 Manufacturing Management Program standard, approved and adopted by most major primes, and are tailorable to program size and type.

> The DoD Acquisition community will be mandating new lifecycle requirements on MRLs and Manufacturing Management that the Connecticut-based A&D suppliers need to prepare for now to remain competitive.

2.1.3. DoD Challenges

In July, the DoD MRL Working Group identified a set of high-level DoD challenges. A summary of their findings, mapped to a simplified defense acquisition lifecycle, is depicted in **Figure 2-1**. The two best opportunities for ensuring customer need resolution are indicated with a star (★).

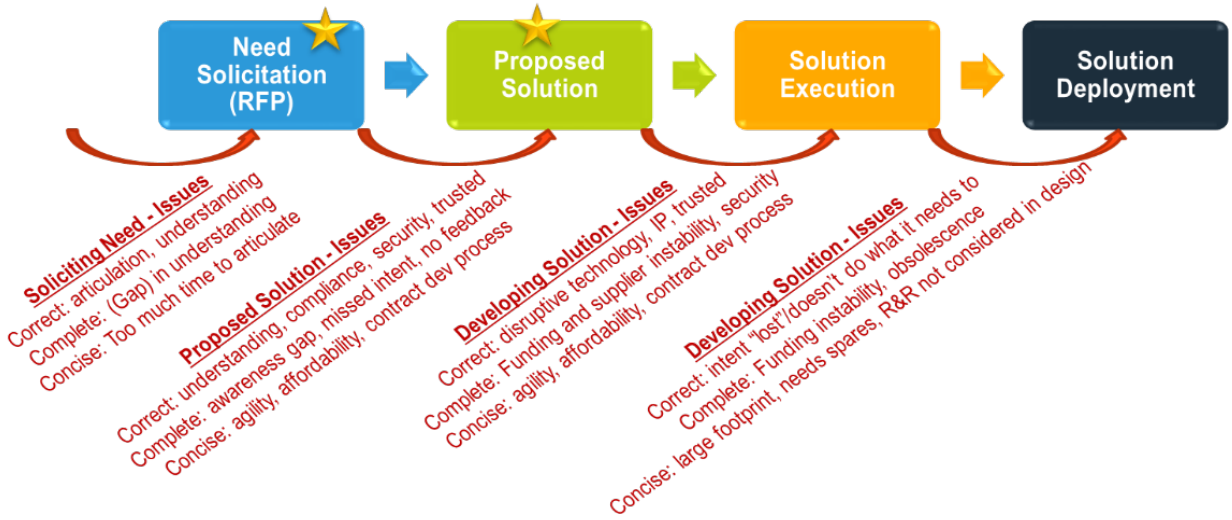


Figure 2-1: DoD Challenges Mapped to a Simplified Defense Acquisition Lifecycle

2.2. Industry Alignment

This section discusses how well the national A&D industrial ecosystem currently meets the four identified areas of DoD need: The Defense Innovation Strategy, cyber integrity, trusted manufacturing, and manufacturing readiness.

2.2.1. Defense Innovation Strategy

Industry has responded to the Defense Innovation Strategy by investing in advanced manufacturing technology. While there appears to be partial A&D industry alignment to the strategy, advanced manufacturing may have been driven more by market trends and competitive positioning, and therefore may only indirectly reflect the needs of the DoD. However, there are aspects of advanced manufacturing that support the Defense Innovation Strategy. These are described below in terms of the top 4 advanced manufacturing trends (that also support the DoD), and Industry 4.0.

2.2.1.1. Top 4 Advanced Manufacturing Trends

To better assess the future needs of manufacturing, nine recurring topics were identified in Phase 1 of this study (see **APPENDIX B: Nine Recurring Topics**). These trends address the DoD ManTech Program's strategic thrusts 1 and 4: "Responsive & Balanced Portfolio" and "Infrastructure & Workforce," respectively.[12] Four of the trends (described in more detail in this section) are advanced manufacturing technologies that likewise support the DoD R&E Strategy and also were the most frequent recurring topics in stakeholder discussions in Phase 2. These four trends are:

- **Digital Thread**[13] is an electronic enterprise integration process spanning from concept through manufacturing. It employs automated methods to speed up design and production of parts, reducing defects and the need for human intervention. Applications include automated machining, automated tolerancing, and optimization of material flows.
- **Additive Manufacturing (AM)**[14] produces 3-D objects using Computer-Aided Drafting (CAD) models. It creates an object by adding layers from feedstock that can have a variety of liquid, powder or solid forms. This manufacturing method is fast and fabricates whole parts in a single process. It supports design visualization, rapid prototyping, and customized part and industrial tooling creation.
- **Flexible Hybrid Electronics**[15] can be printed on flexible and durable materials that withstand use that normal circuit boards cannot accommodate. Applications include wearable systems, embedded sensors that operate under extreme conditions, and improved medical technology delivery.
- **Cybersecurity**[16] is intended to protect algorithms and data, removing opportunities for malicious disruption to the manufacturing supply chain which can result in a loss of competitive edge. An insufficient cybersecurity implementation can also introduce potential vulnerabilities to products and services used in the civil sector or by the DoD.

[12] https://www.dodmantech.com/About/Funding
[13] For more information on Digital Thread, see: http://www.industryweek.com/systems-integration/demystifying-digital-thread-and-digital-twin-concepts, https://www.dodmantech.com/ManTechPrograms/Files/AirForce/Cleared_DT_for_Website.pdf, and on digitalization: https://www.siemens.com/global/en/home/company/topic-areas/future-of-manufacturing.html
[14] For more information on Additive Manufacturing, see: http://additivemanufacturing.com/basics/ and https://www.technologyreview.com/s/513716/additive-manufacturing/
[15] For more information on Flexible Hybrid Electronics, see: https://www.nextflex.us/
[16] For more information on Cybersecurity, see: https://www.dhs.gov/topic/cybersecurity

Support for the 4 Advanced Manufacturing Trends within Connecticut

Support for advanced manufacturing is growing in Connecticut's A&D industrial base, but there is still a strong reliance on traditional manufacturing. See **Section 4.2.1** on Connecticut's Advanced Manufacturing Landscape for more detail.

2.2.1.2. Industry 4.0

By applying the Internet of Things (IoT) to advanced manufacturing, Industry 4.0 interconnects digital manufacturing technology that "communicates, analyzes, and uses information to drive further intelligent action back in the physical world (Sniderman, Mahto, & Cotteleer, 2016)." Nine technological advances underpin the Industry 4.0 production transformation: Advanced robotics, big data and analytics, cloud computing, the industrial internet, horizontal and vertical system integration, simulation, augmented reality, additive manufacturing, and cybersecurity.[v]

Key considerations for the implementation of Industry 4.0 in Connecticut include:

- **A shift in the workforce skillset.** Production skills supplementing machining and traditional manufacturing with software development, data management, and data analytics.
- **Transition burden.** It is believed Industry 4.0 should provide significant cost savings in production, providing an opportunity for the Connecticut state government to aid companies wishing to undertake the transformation by offsetting some of the transition burden.
- **Impact to customer base.** The DoD restricts the use of technologies such as cloud computing due to security concerns. Applying Industry 4.0 to the Connecticut-based A&D supply chain will require proper handling of sensitive information across the supply chain to maintain a trusted industrial base.

Support for Industry 4.0 within Connecticut

The "Industry 4.0 – Opportunities and Challenges for Connecticut" forum[17] featured collaborative efforts between Connecticut and Germany to introduce Industry 4.0 processes to Connecticut. Presentations at the forum addressed the potential for Industry 4.0 to improve manufacturing processes. Moreover, the forum identified how Connecticut-based industry, government, and educational institutions are implementing Industry 4.0 concepts. Participants toured CCAT's Advanced Manufacturing Center that demonstrates Industry 4.0 technologies and processes to Connecticut manufacturers.

[17] Hosted by the Connecticut Capitol Region Council of Governments and the German Consulate, Boston, March 29, 2017 (Wray, 2017)

2.2.1.3. Barriers to Developing Advanced Manufacturing within Connecticut

Implementation of advanced manufacturing requires business investment. The "2017 Survey of Connecticut Manufacturing Needs" highlights barriers to its adoption by Connecticut businesses: [vi]

- **Lack of in-house expertise** to implement advanced manufacturing procedures
- **Prohibitive cost** to upgrade or replace existing equipment
- **Lack of available downtime** to bring new capability online or train employees

2.2.2. Cyber Integrity

Currently, there is a general lack of awareness of cyber integrity (e.g., cybersecurity and cyber resilience) issues throughout the A&D manufacturing industry and in Connecticut. There are exceptions, including programs for addressing counterfeit parts. Yet, there is no cohesive strategy for implementing cyber integrity within the A&D manufacturing sector.

> Connecticut is taking proactive measures to improve general security awareness by providing training in early GFY18 for its manufacturing workforce. This training will have an emphasis on cyber integrity challenges in advanced manufacturing.

2.2.3. Trusted Manufacturing

Trusted manufacturing presents a significant opportunity for Connecticut, and not just from the standpoint of end user product suppliers. There is a growing need for native production of manufacturing tools as well. Connecticut's longstanding history and current positioning as a strong manufacturing base lends itself to developing an advanced, trusted manufacturing network within the state. Bridgeport's machine tools were once flagship products exported from Connecticut, now largely supplanted by advanced tooling from China, Germany and Japan, among others.

> Connecticut has an opportunity to re-establish itself as a trusted source of advanced machine tools in support of the DoD's need for trusted manufacturing.

2.2.4. Manufacturing Readiness

MRLs address major DoD acquisition concerns by setting manufacturing expectations and standards.

In industry. Many primes contributed to the definition of MRLs within the Defense Acquisitions community through the DoD MRL Working Group and are poised to gain a competitive edge when planned requirements take effect.

In Connecticut. Based on our sampling of companies, the Connecticut industrial base and its support system are largely unaware of the upcoming need for MRLs. The Connecticut educational system is not yet teaching MRLs, although its curriculum aligns with the Process Capability & Control thread central to MRLs. Primes in Connecticut that were consulted as part of this study are not yet using MRLs, instead applying their own proprietary standards. In turn, suppliers to those primes are also not using MRLs.

This issue can be mitigated by offering subsidized practitioner training or training vouchers for small and medium A&D businesses. This program will enable the state to proactively address manufacturing readiness criteria flowed down from the DoD customer and prime contractors while identifying candidate suppliers for state endorsement as a "Manufacturing Center of Excellence (COE)".

2.3. Actionable Takeaways

The following are some actions Connecticut can take to strengthen the state's areas of excellence and improve alignment of the state's A&D supply chain with the DoD.

2.3.1. Connecticut's Areas of Excellence

Connecticut has established a set of programs and organizational entities that effectively serve A&D manufacturing needs. The A&D industry needs these programs and entities to fulfill contracts as established suppliers. This area of excellence includes Connecticut's rich history as a national manufacturing resource with a renewed focus on (advanced) tools manufacturing.

Recommendation: Further invest in manufacturing awareness, innovation, and readiness; in particular, a greater preparedness for MRLs. Specifically, MRL 6 should be a target for Technology Maturity & Risk Reduction (TMRR) programs and MRL 8 for Engineering & Manufacturing Development (EMD) programs

2.3.2. Connecticut's Path to Strengthen Alignment with DoD

The following are recommendations for Connecticut to strengthen the A&D supply chain alignment with the DoD:

Recommendations:

- **Grow awareness** of coming changes to expectations and standards.
- **Provide training in MRLs/Manufacturing Readiness Assessments (MRAs)**, offering vouchers to suppliers unable to afford training. MRLs are being mandated in DoD contracts. In anticipation of MRLs being flowed-down to the supply base, suppliers should be made

aware of the success criteria for MRLs. Though MRL Training is offered through the DoD is typically only available to USG contractors and acquisitions officers, some slots in the MRL certification program are available through the Air Force Institute of Technology (AFIT) Also, some consulting companies are offering DoD MRL training courses (not yet endorsed by the DOD). State-sponsored training can fill access gaps.

- **Encourage integration and application of MRLs/MRAs** within the critical institutions.
- **Encourage contribution to working groups** and organizations that define improvements in coordination with the government.
- **Incorporate cyber integrity** (e.g., cyber security and resilience) measures to assure that the manufacturing environment is secure from adverse or latent threats. These measures should be incorporated *now* as they will be expensive to address if left as future add-ons. Measures may include suppliers instituting counterfeit parts protection plans.
- **Track adoption of additive manufacturing** by out-of-state competitors. Encourage its adoption within the state.
- **Investigate applicability of flexible hybrid electronics** and leverage existing resources in the northeast.

3. Market (A&D) Assessment

Robust and resilient competitiveness by Connecticut's A&D industrial base depends on alignment to customer needs as well as being properly resourced and supported. Draper engaged directly with OEMs and Prime Contractors to understand the competitive landscape in these areas.

3.1. Total Addressable Market (TAM)

The U.S. A&D industry enjoys a thriving marketplace, with $600B in direct sales and an additional $180B in induced sales in 2015,[vii] expanding to almost $900B in sales in 2016.[viii] In 2015, over 1.6 million people were employed directly in A&D (approximately 917,000 in manufacturing), with an additional 1 million people supported by induced employment.[ix] In the same year, Connecticut saw $27B in A&D sales while employing approximately 60,400 people with another 31,000 in induced employment.[x] This data suggests Connecticut's workforce is comparable to states such as Arizona (56,600 A&D, 35,800 induced), Florida (70,500 A&D, 45,700 induced), Missouri (56,400 A&D, 60,800 induced), and Kansas (52,200 A&D, 28,100 induced).[xi] In fact, Connecticut was the only eastern state other than Georgia in the top 10 US A&D employers.[xii]

The ability of Connecticut to support such significant A&D development and maintain an extensive manufacturing infrastructure makes the state the ideal center to prove out solutions developed by its innovation centers and organizations across the eastern US. Further, Connecticut's coastal access presents A&D business opportunities for European and other trans-Atlantic A&D markets.

> Connecticut's Total Addressable Market in A&D is the global market, with a competitive and geographic advantage in the eastern US and trans-Atlantic market segments.

Despite this advantage, two other eastern states—Georgia and South Carolina—have shown significant A&D growth in recent years.

3.1.1. What are Connecticut's opportunities for sales and jobs growth?

In the 2010 – 2015 period, Georgia grew its international A&D exports from $4.4B to $7B, while South Carolina grew from $0.15B to nearly $4B.[xiii] The combined net growth of these two states, over $7.5B total ($1.2B average annually), can be viewed as unrealized market opportunities.

Nationally, there was over $55B in A&D market growth in the top ten exporting states (including Georgia and South Carolina) during the same time period.[xiv] This gain translates to about $9B of opportunity expansion annually outside of Connecticut.

Based on these numbers, Connecticut's opportunity for growth in A&D exports was between $1.2B and $9B annually during the 2010 – 2015 timeframe.

3.1.2. What did Georgia do?

"Georgia …encourag[ed] the expansion of manufacturing jobs through *tax reform, the adoption of competitive energy rates, promotion of infrastructure, commitment to skills training,* and other measures designed *to encourage new manufacturers and retain existing investment*. In the last few years, Georgia has attracted better than $3 billion in new manufacturing investment. Georgia is well-positioned to continue to attract manufacturing investment and growth, with abundant natural resources, competitively priced energy, world-class technical college and university systems, Quick Start[18], the busiest airport in America, and the fastest growing port in the United States in Savannah."[xv]

3.1.3. What did South Carolina do?

South Carolina invested in *growing awareness* via the South Carolina Grant – State Trade Export Program (STEP), whose "objectives are to increase the number of small businesses that are exporting, and to increase the value of exports for those small businesses that are currently exporting."[xvi] STEP provides awareness of the South Carolina manufacturing capability by "help[ing] to cover the businesses' costs to attend and exhibit at the [Farnborough and other air] shows."[xvii]

Georgia and South Carolina achieved growth through a combination of financial incentives, infrastructure investment, skills development, new manufacturing company incentives, leveraging technical college and universities, and increasing awareness of their manufacturing capabilities to the international community.

3.2. Aerospace and Defense Manufacturing Landscape

To understand the A&D manufacturing landscape within Connecticut, the supplier, DoD contractor, and manufacturing consortia perspectives were elicited, researched, and compiled.

3.2.1. Supplier Perspective

This section covers the perspective of *small to medium suppliers* on Connecticut's A&D manufacturing, as elicited during interviews.

[18] Georgia's Quick Start is a no-cost, customized and comprehensive workforce training program for qualified companies with presence in the state: https://www.georgiaquickstart.org/

Capabilities and Strengths:

- **High-caliber students** from Connecticut technical high schools and community colleges.
- **Strong partnership between the Connecticut A&D supply chain and the technical school system** enabling employer input to better align curriculum with trends and providing apprenticeship opportunities to reduce program hours and prepare the workforce.
- **Industry experience of instructors**.

Current Challenges:

- **Effects of a High Mix/Low Volume production.** Small component manufacturers are challenged to support High Mix/Low Volume demands. Large primes/OEMs require a commitment for capacity without a promise to order those amounts. This requirement forces small manufacturers to purchase capital equipment that may not yield a return on investment (ROI).
- **Obtaining security clearances.** The process of applying for a clearance cannot start until staff are hired and assigned to classified programs. Clearances can take over 6 months to process and are costly for small suppliers.
- **Competition for commodity part sourcing**. When sourcing custom or complex components, primes look for suppliers within the state first for quick turn and development contracts. For production contracts or commodity parts, decisions are based on the lowest cost with acceptable capability anywhere within the US.
- **Short-term profitability objectives of venture capitalists (VCs).** VCs have been acquiring small component manufacturers within the state. VCs often purchase supplier businesses with the objective of short-term financial gain. Sometimes, the VCs build up a backlog of work at unsustainable prices to give the appearance of long term sustainability. This strategy enables a premium sales price, but creates financial risk when the contract is executed.

Future Challenges:

- **Lack of information of Prime needs from component manufacturers.** Each new capability needed by the DoD brings challenges (e.g., need for new capital or redefinition of processes). These needs rarely flow down to suppliers in time to mitigate impacts on their operations.

- **Deficit in skill training for emerging manufacturing technology.** Existing training is aligned with current trends, but reaction time for adapting to new advancements is over 5 years. The education system needs to address emerging technology more rapidly.
- **Increased capital expenses.** Small manufacturers face costly equipment purchases for some technologies unless equipment is made accessible as a shared resource.
- **Cybersecurity and export compliance.** Digitally integrated manufacturing machines will be connected to internal and external networks, adding risk of malicious access.

Opportunities for Improvement

- **Increase awareness of future needs** by exposing the supply chain to DoD R&D activities; elevating visibility of Other Transaction Authority (OTA) Consortia and DoD Small Business Innovation Research (SBIR) programs; and providing in-state opportunities for manufacturing community of interest (COI) workshops based on Manufacturing USA trends.
- **Assist with capital investments** for new manufacturing technology equipment and automated systems for highly repetitive, time-consuming processes. Small companies would be able to evolve their manufacturing processes with the time and resources freed up by incorporating automation.
- **Support suppliers in acquiring technical expertise** regarding automation equipment and for incorporating updated processes into workflows. A pooled advanced manufacturing expert could provide broad support or training to small suppliers as a state technical liaison or a state-sponsored training service for equipment suppliers.
- **Security clearance education programs** such as those offered in Maryland, South Carolina and Virginia, should begin at the high school level.
- **Relaxing manufacturing instructor certification requirements** will enable technical high schools and community college programs to better meet training needs.

3.2.2. Government Contractor Perspective

This section covers the perspective of *government contractors, prime contractors, and OEMs* on Connecticut's A&D manufacturing, as elicited during on-site interviews. An OEM is a manufacturer of whole products sold to an end user while prime contractors are typically OEMs who are designated by the DoD as the single point of purchase for a product or solution.

Capabilities and Strengths

- **High-caliber graduates**. Connecticut's technical high school system and manufacturing programs offered at public colleges produce high-caliber, well qualified job candidates.
- **Strong partnerships between industry and schools**. OEMs partner with schools on apprenticeship programs facilitating skill development and job placement under the mentorship of experienced manufacturing personnel.
- **A true US-based supplier network.** Connecticut is home to true US-based suppliers, as required for most DoD contracts.

Challenges

- **Strategic sourcing criteria for commodity parts.** A threat to Connecticut's suppliers is application of "strategic sourcing" criteria in supplier selection. Strategic sourcing may consider lowest-cost at the expense of capability or quality, providing contracts to "preferred" suppliers for long-term buys, eliminating opportunity for Connecticut suppliers to compete. Long-term agreements (LTAs) typically last 5-7 years, which is enough time for a small supplier to lose viability. Strategic sourcing extends the competitive space to the entire US.
- **Venture Capitalist acquisition of suppliers.** The short-horizon profitability objectives of VCs may conflict with the objective of a sustainable industrial base. Approximately half of the supply chain in Connecticut is now VC-financed or owned. Some contracts with VC-owned companies were problematic because the VC drove bookings at an unsustainable and overly-aggressive price to increase the supplier's resale attractiveness, causing some of these suppliers to fail once the businesses were sold (by the VC). *Some VC acquisitions may be by foreign investors*, which has national security implications due to the strategic nature of the A&D manufacturing (Council on Foreign Relations, 2016).
- **Lack of information / lack of funding.** Tier I suppliers lack information to anticipate Prime Contractors' needs (in defense) which in turn causes lags in satisfying those needs. This information gap also causes a shortage in skilled employees prepared to use new machines or processes to produce needed products. Skills to satisfy emerging advanced manufacturing technology will require in-house training, driving up costs.
- **Capitalization for new capabilities and tooling.** Connecticut suppliers need assistance for capital investment in advanced manufacturing technology.

- **Insufficient pool of teachers and students.** The small pool of vocational teachers creates an industry workforce supply challenge. Prime contractors and OEMs believe this challenge is caused by the *time commitment and certification requirements to become an instructor*.
- **DoD Clearance eligibility.** Finding skilled workforce candidates eligible for DoD contractor clearances is another challenge. There were also concerns about the job candidate familiarity with cybersecurity, export control, and other essential security-related practices.

Opportunities for Improvement

- **Improve awareness** that manufacturing is a viable career.
- **Implement automation for highly-repeatable manufacturing processes.** The supply base could better support their needs by implementing automation for highly repeatable processes (e.g., visual inspection, fabrication, and assembly) that are currently manual and time-consuming. The ability of small suppliers to schedule and access equipment for batch processing of repeated processes at a center such as CCAT would increase throughput and reduce errors.
- **Low-volume/high-mix high-tech manufacturing.** Many primes and OEMs deliver small quantities of large scale systems, therefore requiring only a small number of parts. These companies resolve this through volume purchasing, only to dispose of unused parts upon contract completion. The Connecticut supply base in aggregate is capable of providing low-volume/high-mix manufacturing, reducing costs to the primes/OEMs and the DoD. In combination with being US-based, this advantage can posture Connecticut suppliers as regional "preferred suppliers".
- **Stabilize the supply base.** To attain regional "preferred supplier" status, the supply base must be sustainable. In Connecticut's case, it is essential to ensure that involved VCs intend to strengthen the capabilities of the suppliers, and not purely investing for speculation purposes.
- **Security, export control and compliance training.** Courses on these topics should be part of a high-school security clearance preparation and training initiative, or a standalone offering for students planning a career in A&D manufacturing. Such courses exist in a web-based training format at many companies, and employees of these companies with technical responsibilities are conversant enough to provide brief training courses on these topics. A program by which prime and OEM employees provide training services is recommended for consideration.

3.2.3. Manufacturing Consortium Perspective

The manufacturing consortium perspective highlights various capabilities and strengths within Connecticut, as well as challenges and opportunities for improvement.

Capabilities and Strengths

- **Outreach to younger generations**. CCAT holds the "Dream It. Do It" summer program to expose 5th to 9th graders to opportunities in manufacturing.[19] Part of a national network, the program inspires interest in manufacturing careers.[20]
- **The Composites Manufacturing COE.** CCAT is developing advanced composite manufacturing solutions.[21]
- **The Connecticut Advanced Manufacturing Initiative (CAMI).** The CAMI grant has expanded manufacturing training programs, providing funding for instructor hiring, curriculum development, and physical infrastructure.[22]

Current Challenges

- **Cybersecurity** is a concern imposing new requirements on the A&D supply chain
- **Supply chain awareness** of the future technology needs of Primes/OEMs
- **Capital.** Costly technology upgrades are needed for manufacturers to stay competitive, necessitating more private funding
- **High-dependence on common manual processes** reduces available time to spend on high-skilled manual processes

Future Challenges

- **MRL requirements in DoD contracts** will add costs for capability advancements needed to be eligible to submit proposals/bids
- **Inclusion of AS6500 Manufacturing Management Program.** Contracts starting in the GFY18 must include AS6500 Manufacturing Management Program in SoWs.

Opportunities for Improvement

- **Provide targeted assistance to the supply chain**. This can include training support regarding cybersecurity, new technologies, and MRLs, as well as local trade shows that highlight advanced manufacturing technology benefits and supplier resource centers.

[19] For more information about Connecticut's Dream It. Do It. Educational and outreach program, see the link: http://ctdidi com/who-we-are/about/
[20] For more information on the national network of Dream It. Do It. Programs, see the link: http://www.themanufacturinginstitute.org/Image/Dream-It-Do-It/Dream-It-Do-It.aspx
[21] For more information on CCAT's advanced composite manufacturing, see the link: https://www.ccat.us/amc/
[22] For more information on CAMI, see the link: http://www.ct.edu/files/pdfs/manufacturing-newsletter-cami-06-2015.pdf

- **Support Composites Manufacturing COEs**. CCAT is leading the way and continues to develop this. University composite manufacturing programs should also be bolstered.

3.3. Connecticut's Competitive Positioning

This section evaluates Connecticut's competitive positioning within the national A&D industry.

3.3.1. A State-based Innovation Economy Comparative Case Study

Massachusetts provides an opportunity for insights into how to cultivate a robust innovation economy. Its proximity and other similarities make a relevant case study for Connecticut.

> *Despite the many challenges our economy has faced over the past 20 years, the Commonwealth remains a global hub for new research and development in a wide range of industries. That was driven home in early 2016 when General Electric made the decision to relocate its headquarters to Massachusetts* [from Connecticut]*,* ***citing our robust innovation ecosystem and R&D prowess as key reasons for their decision****. (20 Years of the Annual Index of the Massachusetts Innovation Economy, 2016 Edition, p. 8)*

There are three areas in which Massachusetts is strong (20 Years of the Annual Index of the Massachusetts Innovation Economy, 2016 Edition, p. 5)*:*

- **Superior workforce and talent pipeline.** As of 2014, 46.6% of the Commonwealth's working adults held at least a bachelor's degree.[xviii] In 2015, Massachusetts's university and college system graduated 118,420 students with Science, Technology, Engineering and Math (STEM) degrees (MassTech Online).
- **Second highest R&D funding in the US**. Massachusetts received $27.98 B in 2014.[xix]
- **Attractive investment destination for venture capitalists.** In 2015, venture capital investments in the state increased by 25% to $5.8B.[xx]

And what is the source of Massachusetts' enduring economic strength?

> *Twenty years of Index indicator tracking demonstrates that the Commonwealth's enduring economic strength stems from our* ***talented workforce*** *and* ***capacity for development of new and diverse innovations****. (20 Years of the Annual Index of the Massachusetts Innovation Economy, 2016 Edition, p. 8)*

How has Massachusetts reinvented itself to stay innovative for so long?

> *Massachusetts has succeeded due to its* ***strong foundation of research institutions*** *and* ***well-educated workforce*** *to pioneer new, cutting-edge industries to replace those in which its*

competitive advantage has been eroded. (20 Years of the Annual Index of the Massachusetts Innovation Economy, 2016 Edition, p. 9)

3.3.1.1. The Connecticut Innovation Economy

Connecticut has all of the same elements of the Innovation Economy that Massachusetts does. The primary difference is the innovation ecosystem that grew in the Cambridge/Boston area surrounded by the dense population of universities, research institutes, and "anchor" technology companies. This ecosystem took decades and available resources (land and proximity of research institutes and universities) to develop.

> The key to an innovation ecosystem for Connecticut is to build upon existing resources and native capabilities to reinvigorate the already existing (manufacturing) infrastructure.

According to the Connecticut Business and Industry Association (CBIA), there are 4,011 manufacturing firms in the business of creating "transportation equipment (primarily aerospace, submarines, and automotive), chemicals, fabricated metals, electrical equipment, computer and electronic products, machinery, pharmaceutical and medical, and plastics."[xxi] Manufacturing employs approximately 159,000 employees, accounting for 9.5% of the state's non-farm jobs, with an average wage of $95,000 per year.[xxii]

Connecticut has improved over the last several years in the areas of human capital, worker benefit costs, and productivity and innovation; manufacturing sector diversification is currently the biggest area of concern.[xxiii]

In 2016, the CBIA reported that Connecticut was ranked:[xxiv]

- **Sixth** in the Milken Institute's State technology and Science Index[23]
- **Sixth** in research & development per capita
- **Ninth** in patents issued per 100,000 people
- **Tenth** in manufacturing value added per production hour worked

In the same year, the Annual Index of the Massachusetts Innovation Economy published by MassTech Collaborative ranked Connecticut:

- **Third** in educational attainment[xxv]

[23] For more information on the Milken Institute's index and Connecticut's ranking, see the link: http://statetechandscience.org/statetech.taf?page=state-ranking

- **Fifth** in the total number of patents per capita[xxvi]
- **Sixth** in the number of life science and **eleventh** in the number of science, technology, engineering, and mathematics (STEM) degrees per capita[xxvii]
- **Seventh** in total receipt of SBIR funding[xxviii]

For every dollar spent on manufacturing in the state, an additional $1.35 is generated.[xxix]

3.3.1.2. Massachusetts and Connecticut Economy Synergy

Table 3-1 illustrates the economic synergy between Massachusetts and Connecticut, further indicating Connecticut is well-positioned to grow its innovation economy.

3.3.2. Porter's Five Forces Analysis

Porter's Five Forces analysis (Porter, 1979) was applied to perform an A&D industry threat analysis. A high-level summary of the analysis is as follows:

- **Industry Rivalry:** In 2015, the Connecticut A&D industry had more than $27B of sales and 60,000 employees. Connecticut has been seeing an erosion of sales due to other states increasing their market share (Georgia and South Carolina, for example). The growth of these states can be attributed to programs focused on increasing exports through small business investment, tax incentives, and grant programs. These tactics are outside the scope of this study.
- **Buyer Power:** Buyers include government contractors such as primes and OEMs, or the DoD directly. Representatives within each of these groups provided inputs to the Government Contractor perspective represented in this report.
- **"Supplier" Power:** Suppliers in the context of Porter's framework include current and future workforce, materials and services providers, and sources of manufacturing innovation. Within Connecticut, workforce is a key concern from both vocational and research/engineering standpoints. Access to commodities/parts is important, with an emphasis on A&D contracts relying on a US-based supply network. Finally, manufacturing innovation is rich within the region.
- **New Entrants:** A noticeable increase in venture capitalist (VC) investment represents new entrants to the industry. Many VCs are not locally-based, and sometimes not domestically based.
- **Substitutes:** Any commodity part or product can be easily substituted, so Connecticut's key to counter substitution is to focus its manufacturing core on innovative or niche capabilities.

- Table 3-1 Summary Comparison of Massachusetts &. Connecticut Innovation Economies[xxx]

	Connecticut	Massachusetts
2015 Population	3,590,886	6,794,422
2015 GDP	$230.3 billion	$427.5 billion
Innovation Economy Jobs	565,793 (34% of CT Jobs)	1,286,578 (37% of MA Jobs)
Key Sectors	• Biopharma & Medical Devices • Computer & Communications Hardware • Defense Manufacturing & Instrumentation • Diversified Industrial Manufacturing • Financial Services • Postsecondary Education	• Biopharma & Medical Devices • Computer & Communications Hardware • Defense Manufacturing & Instrumentation • Financial Services • Healthcare Delivery • Postsecondary Education • Scientific, Technical, & Management Services • Software & Communications Services
University & Research Institutions	• Yale • UConn • Hartford Hospital	• MIT • Harvard University • UMass-Amherst • Boston University • Northeastern University • Tufts University • Worcester Polytechnic Institute
Companies	• United Technologies • GE • Sikorsky • General Dynamics • The Hartford • Travelers • Cigna • Aetna • Kayak • Priceline • Accenture • Apex	• Raytheon • Dell-EMC • Athenahealth • Fidelity Investments • State Street Bank • Biogen • Genzyme • GE
Initiatives	• UConn Tech Park • CT Next • Connecticut Skills Challenge	• Collaborative R&D Matching Grant Program • Life Sciences Initiative • MassChallenge

The Threat of Substitution is also high in "non-commodity" markets as the cost of change can be prohibitive with buyers willing to accept lowest-cost solutions that are "good enough."

3.3.3. Connecticut's Upside Potential

The following list summarizes some of the most significant benefits Connecticut could realize by successfully pursuing the recommendations put forth in this report.

- **Vocational education strength:** A sustainable, high-quality and adaptive vocational education and training infrastructure for educating the A&D workforce.
- **A job-ready workforce:** A sufficient number of workforce members with the necessary skills for the current and projected needs of the A&D industry.
- **More economic output:** Expansion of the A&D industry's contributions to the economy that provide well-paid career positions.
- **A broader footprint**: A broader-based A&D industry and technology development footprint.
- **More visibility:** National recognition of Connecticut as a major and vital contributor to the security of the US that will encourage new A&D industry players to locate within the state.
- **Solution leadership**: Perception as a technology leader areas of critical global importance.

3.3.4. Connecticut's Competition

Industrial success inevitably breeds competition. The following is a list of potential classes of competition to the Connecticut A&D enterprise:

- **US government and civil A&D product contracts:** This competition class includes efforts to supplant contracts that sponsor A&D manufacturing within the state, or to gain market share at the expense of Connecticut manufacturers. The best mitigation strategy is to ensure in-state A&D manufacturers maintain a technology, cost, and reliability edge, with sufficient workforce to meet the customer demand.
- **Federal grants:** Grants to facilitate better vocational training and DPA Title III industrial capability development/preservation face two risks: 1) Competition from states that have not yet received a share of those resources commensurate with Connecticut; 2) Federal budget allocation resource pressures that could jeopardize applicable line item funding. Mitigation requires advocacy at the national level regarding the importance of state's A&D industry to the nation, and the criticality of federal resources to sustaining national security capabilities.

- **University research programs:** Nascent research university programs face internal and external competition. Internal competition results from infrastructure availability constraints, limits on budgets for expanding facilities, and resistance to collateral restructuring of established programs. External competition occurs over sponsored research. That external threat comes from other domestic research universities pursuing USG sponsorship, and international universities pursuing corporate or philanthropic sponsorship. Mitigation requires highly talented, nationally renowned leadership teams with strong advocacy capabilities.
- **Hosting of new technology leadership facilities:** Other states host research parks with dedicated use for clusters of research and development organizations. These parks are often located near major research universities. Competition to host facilities that provide leadership for new technology comes from these out-of-state research parks and from advocates of specific research universities (often prominent, politically connected alumni) who seek co-location with their favored institution. Mitigation requires formation of a dedicated facility advocacy group for each technology leadership area. Members of such advocacy groups collectively need the following skills: Deep knowledge of the technology; representation of all classes of organizations to be part of a proposed technology leadership cluster; state-granted authority to provide incentives for locating in the state.

3.4. Actionable Takeaways

The following are recommendations for Connecticut to improve its A&D industry competitiveness:

In the Short Term:

Recommendations:

- **Increase appeal and awareness:** Include exposure to the A&D manufacturing career path as part of public education. This should begin no later than middle school, providing insight for students into skills they must develop to enable that career path.
- **Continually improve programs at community colleges** that prepare students for A&D jobs, aiming to expand training slots. The programs should have durations of less than a year.
- **Educate a cyber workforce:** Add manufacturing cybersecurity and cyber resilience training as additional curriculum content in A&D manufacturing vocational training.
- **Train for DoD security clearances:** Include preparation as part of vocational training.
- **Certify retiree educators:** Simplify educator certification for A&D vocational training.

- **Replace expiring federal grants:** Replace grants for A&D workforce development and manufacturing technology demonstration. A public-private partnership that would share cost burden between industry stakeholders and the state government is a primary resource option.
- **Showcase technology to suppliers:** Arrange local manufacturing technology fairs for A&D suppliers at key locations across the state to provide information about new manufacturing, metrology, and automation capabilities with potential to improve competitive posture. These fairs should provide interactive demonstration of capabilities being promoted.
- **Provide export control training:** Offer export control process training classes for A&D industry supplier staff at locations across the state.

In the Longer Term:

Recommendations:

- **Keep vocational education current:** Create a working group focused on keeping A&D manufacturing vocational education curriculum fully up to date with the industry state-of-the-art and trends in manufacturing technology, digital integration, and cybersecurity.
- **Help suppliers get Title III grants:** Partner with the A&D supplier base to seek Title III grants to facilitate survival of applicable, unique Connecticut manufacturing capabilities, to offset loss of critical manufacturing capabilities elsewhere within the US.
- **Address manufacturing tools:** Place a state focus of attention onto manufacture of *the tools* of advanced manufacturing.
- **Incentivize new graduate-level research** with in-state higher education institutions to develop programs that address future needs of the A&D industry and national security.
- **Attract privately-funded research centers:** Seek private, possibly philanthropic funding to create clusters of technology development excellence within the state. For example, a cluster of organizations pursuing green energy technology could include the use of electrified aviation propulsion to reduce aviation's greenhouse gas emissions. Game-changing technology clusters often co-locate with major research institutes in the field. Many such institutes get established by philanthropic gifts aimed at high-profile advances with beneficial impacts on society.

4. Connecticut Resource Assessment

Draper assessed technology innovation, advanced manufacturing and workforce resources in Connecticut to determine the A&D industry landscape.

Figure 4-1 depicts an overlay of universities onto the "footprints" of Connecticut's advanced manufacturers. Multi-colored regions show the footprints of major A&D companies in the local area, blue dots represent technical high schools and colleges with engineering and manufacturing curricula, and red dots indicate the educational institutions with neither engineering nor manufacturing curricula. Note the footprint on the southeastern shore with no proximal educational institution. Such cases warrant further investigation to achieve manufacturing technology and capability alignment.

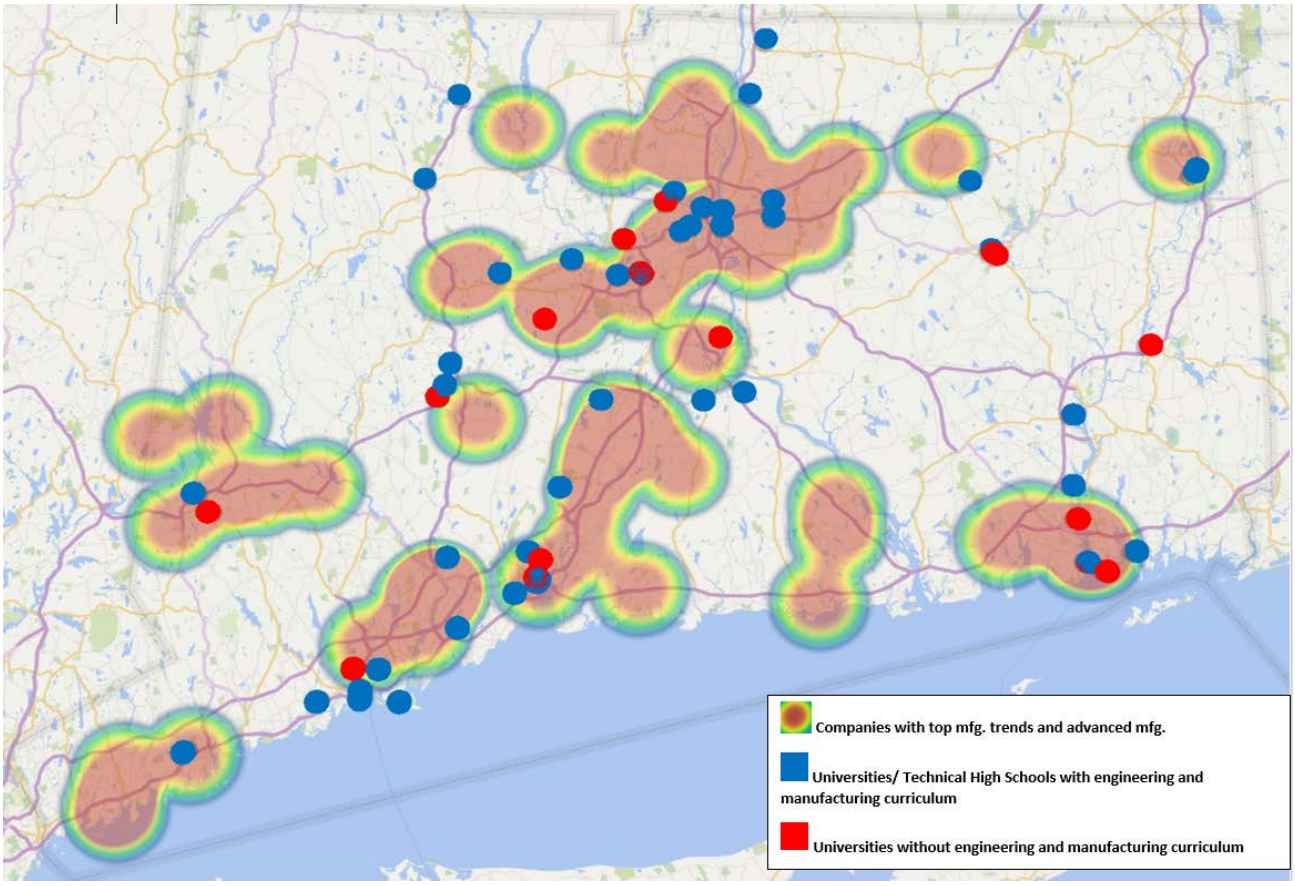


Figure 4-1: Heat Map of Connecticut's Resources (Advanced Manufacturing Footprints with University Overlay)

4.1. Technology Innovation (R&D)

This section provides an overview of the technology innovation resources available to Connecticut to support the rapidly evolving A&D industry.

4.1.1. Connecticut's Technology Innovation Landscape

Connecticut's innovation landscape includes potential collaborators at the regional and national research institutes, prospective partnerships with the fourteen Manufacturing Innovation Institutes, and CCAT, Connecticut's solid foundation for building a technology innovation ecosystem.

4.1.1.1. Regional and National Research Institutes

In addition to the in-state research institutes, the opportunity exists to collaborate with the following regional and national research institutes:

The Raytheon University of Massachusetts Lowell (UML) Research Institute (RURI)[24] is a joint facility dedicated to researching advanced technologies like flexible and printed electronics. It is run by UML and Raytheon personnel, enabling collaboration between the organizations.

The Air Force Research Laboratory (AFRL)[25], located outside of Dayton, Ohio, develops and integrates technologies for air, space and cyberspace forces. Its Materials and Manufacturing Directorate[26] focuses on new processes and manufacturing technologies for aerospace applications.

The Office of Naval Research (ONR),[27] located outside of Washington DC in Arlington, VA, has two main divisions: The Office of Research and the Office of Technology. The Office of Research funds development of new technology concepts in cost sharing projects with industry. The Office of Technology focuses on transitioning breakthrough technologies to support the Warfighter. Within the Office of Technology is the Navy's ManTech program, which works with industry to improve manufacturing processes and equipment for various platforms including submarines and fighters.

The Georgia Tech Manufacturing Institute (GTMI)[28] improves manufacturing materials and processes through innovation and design optimization. GTMI "brings together industry leaders, government partners and top researchers to collaborate and find solutions for the greatest challenges facing U.S. industry today: Creating quality jobs, ensuring global competitiveness, and advancing economic and environmental sustainability." (GTMI)

4.1.1.2. Manufacturing Innovation Institutes

Manufacturing USA connects multiple manufacturing innovation institutes across the country, each with individual technology focus areas. The network collaborates to secure the future of American

[24] For more information on RURI, see the link: https://www.uml.edu/Research/PERC/RURI/
[25] For more information on the AFRL, see the link: http://www.wpafb.af.mil/afrl/
[26] For more information on the AFRL Materials and Manufacturing Directorate, see the link: http://www.wpafb.af.mil/afrl/rx.aspx
[27] For more information on the ONR, see the link: https://www.onr.navy.mil/
[28] For more information on GTMI, see the links: http://www.manufacturing.gatech.edu

manufacturing. Together, they strengthen U.S. national security, amplify industrial competiveness and boost economic growth. Connecticut has the opportunity to leverage the resources of Manufacturing USA to spin up on advanced manufacturing.

4.1.1.3. CCAT – New Technology Innovations

Founded in 2004, CCAT is a nonprofit organization implementing "bold ideas for applied technologies, IT strategies, energy solutions, STEM education and career development." (About CCAT, 2017) CCAT fosters relationships between advanced technology stakeholders to enable them to solve common problems.

CCAT's Advanced Manufacturing Center showcases and evaluates manufacturing equipment and procedures enabling Connecticut's manufacturing community to observe and learn how to apply new tools. The facility staff includes manufacturing experts. It interacts with technology companies to understand and communicate innovations in advanced manufacturing.

To sustain growth in technology sectors, the state must maintain a pipeline of new talent to fill open positions and replace retiring workers. One effective strategy is to ensure that graduates from Connecticut's universities and high schools choose to pursue STEM careers. CCAT works with educators and the manufacturing community to create curriculum and outreach efforts to spark interest in STEM. CCAT also works with job seekers to gain the skills they need to pursue advanced technology careers and then identifies employment opportunities. Furthermore, CCAT promotes reliable and sustainable energy resources for Connecticut and encourages their better use.

4.1.2. Connecticut's Technology Innovation Sufficiency

Innovation changes what and how things are done. Not all primes and suppliers within the state are aware of available innovation resources or use them consistently. To fully benefit from technology innovation resources, primes and suppliers must be well-integrated with the manufacturing base, facilitating assessment and adoption of innovation at all levels of the manufacturing value chain.

Technology innovation success for Connecticut depends on proper situational awareness in two operational dimensions: Tactical and strategic.

Tactical Awareness

Tactical awareness supports smaller, close-to-home decisions with less long-term impact.

Manufacturing Ecosystem. During visits to stakeholders (educational institutions, consortia, and primes), it became apparent that none were sufficiently aware of the others. Each had some

knowledge of other stakeholder priorities and needs, but decisions were based solely on their own roles.

Health & Welfare of the Industry. While metrics and processes for monitoring and managing the health and welfare of the industrial base exist, standardization, aggregation, and deployment of these metrics and processes at the state level would create a powerful tool set. Such a capability would enable the state and A&D supply chain to set targets, assess against those targets, identify gaps, and then apply remediation to bring systems into alignment with goals.

Strategic Awareness

Strategic awareness supports long-term, high-level planning with essential long-term impact.

Manufacturing Innovation. This study found that stakeholders had little insight into future DoD needs; similarly, suppliers had little insight into the primes. This lack of awareness prevents an aligned strategy for competitiveness or innovation. Most interviewed stakeholders had little insight into manufacturing innovation at a national level due to their focus on current contract execution.

Manufacturing Education Programs. Manufacturing workforce education programs are executing well, but inadequate insight into manufacturing trends adversely affects how well future needs are addressed. Some educational institutions desired more frequent updates to curriculum than the current (five-year) cycle.

Workforce Development. Education programs are not anticipating or addressing future changes needed in workforce skill sets. Industry-experienced instructors help develop and train on current skills, but curriculum development for prospective technology skill sets (e.g., computing, programming, cybersecurity/resilience, additive manufacturing, and composites) is lacking.

4.1.3. Actionable Takeaways

The following are recommendations for Connecticut to improve its technology innovation by increasing the situational awareness of its A&D industry:

Tactical Awareness

Recommendation: Establish State Manufacturing Health Metrics (SMHMs). These metrics should *assess the alignment of the Connecticut industrial base, educational institutions, infrastructure, and policy with the current (A&D) customers*. The SMHMs should factor in advanced manufacturing capability as defined by the Manufacturing Innovation Institutes, as these represent features of the future competitive landscape.

Recommendation: Host an annual "State of the Industry" forum to showcase what has been going on and what is coming (e.g., latest manufacturing trends, Title III funding opportunities, etc.). It would provide the opportunity for Connecticut suppliers to participate in a vendor fair to showcase their capabilities for prime contractors, and could also be used as a recruiting event for local students. State suppliers should be invited to participate. Such a symposium would provide Connecticut with takeaways/actions to support policy planning.

Strategic Awareness

Recommendation: Participate in DoD Manufacturing Innovation Programs and working groups. This participation will facilitate awareness of future DoD needs. Grant eligibility rules result in collaborations between primes/OEMs, educational institutions, and small businesses providing opportunity for all to foresee needed direction for their efforts.

4.2. Advanced Manufacturing

This section provides an overview of Connecticut's A&D advanced manufacturing landscape and addresses the sufficiency of resources to sustain and grow it.

4.2.1. Connecticut's Advanced Manufacturing Landscape

The manufacturing landscape is constantly adapting to new technology. Four trends that are likely to have the most impact on the A&D industry are **flexible hybrid electronics**, **additive manufacturing**, **cybersecurity**, and **digital thread**. The prevalence of these trends in Connecticut's A&D industry is depicted in **Figure 4-2**. Their significance to the state are as follows:

Flexible hybrid electronics is a cutting edge technology that will become more widespread, creating new opportunities for Connecticut.

Manufacturing capability for flexible hybrid electronics in Connecticut should be assessed for sufficiency to support evolving demand.

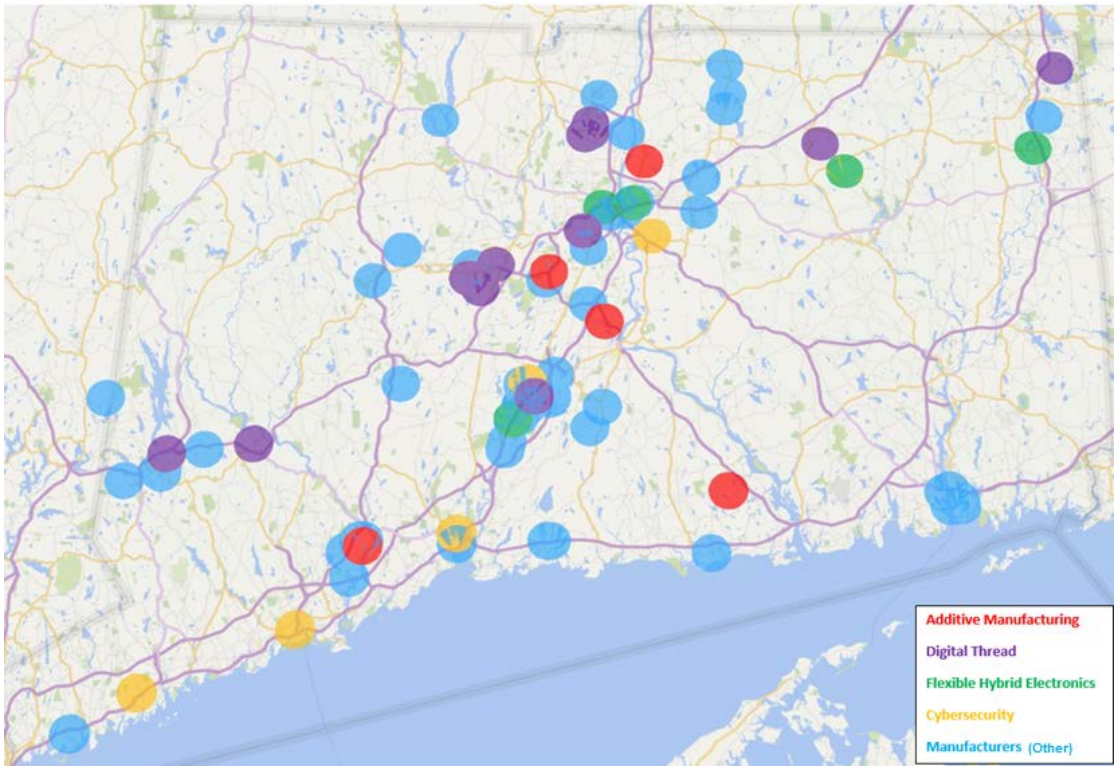


Figure 4-2: Map of Connecticut Manufacturers Aligned with "Top 4" Advanced Manufacturing Trends and Traditional Manufacturers (Other)

Additive manufacturing is an entirely different manufacturing process that provides a competitive edge. It is being widely adopted because it reduces manufacturing time and waste. If ignored, it will eventually become a threat when taken up by competitors. In addition, additive manufacturing could be required in the future by the DoD customer, as it offers potential to reduce cycle time in manufacturing and deployment environments. Limitations remain, especially regarding parts that require non-homogeneous material properties. Addressing these issues could create new business opportunities for Connecticut.

Additive manufacturing capability exists in the Connecticut A&D supply chain and should be nurtured into maturity.

Cybersecurity is a growing concern, with the *manufacturing industry now being "one of the most frequently hacked industries, second only to healthcare*." (Bennett, 2017) Inadequately addressed, companies' technology, information, and people are at risk. Proprietary and sensitive government information is often targeted for theft. The actual manufacturing process itself may also become a target, leveraging the networked manufacturing equipment on the shop floor. Manufacturing sub-tiers, frequently unprepared to address cyber vulnerabilities, have resulting information export

control challenges and potentially face threats to their production quality & assurance. Mitigating this problem will be critical to future success in the manufacturing industry.

> Connecticut should develop a comprehensive strategy for integrating cybersecurity and cyber resilience into its A&D supply chain.

Digital thread technology is viewed as a future enabler for process efficiency, provided cyber integrity is assured for its networked and electronic process. A "trusted transaction" capability and data protections are required for digital thread cybersecurity. *Absent cyber integrity, the digital thread can introduce vulnerabilities to supply chain integrity, IP protections, and other national security interests.* Digital thread is already prevalent in high volume manufacturing and it uses are expanding. It can reduce waste, production turn-around time, and cost.

> Connecticut should be involved in guiding the adoption of digital thread to ensure cyber integrity is properly addressed in the A&D supply chain.

4.2.2. Connecticut's Advanced Manufacturing Sufficiency

The sufficiency of advanced manufacturing in Connecticut can be assessed by evaluating how well existing advanced manufacturing resources can satisfy gaps in customer needs as well as gaps in the state's competitive positioning.

To Satisfy Gaps in Customer Needs

Connecticut's advanced manufacturing capability sufficiently addresses *current* customer needs. *However*, several issues need to be addressed for that to remain true. A critical gap to address will be in **cyber integrity** (cybersecurity and cyber resilience) as more suppliers tie to a digital thread. Smaller suppliers have indicated they either do not know what cybersecurity requirements need to be met, or how to implement them. Ultimate responsibility to address the issue fall on the Primes/OEMs who are required to ensure compliance across the supply chain. Achieving high levels of cyber integrity will be viewed as a competitive advantage for future sourcing decisions.

Large area additive manufacturing will be important in the future. Larger print beds than currently available will be needed to produce parts at a scale necessary for components such as aircraft engines.

Composites manufacturing reduces weight and improves performance of products. Connecticut already has several component suppliers exploring new materials used in large carbon fiber assemblies, and a composites COE is being established by CCAT.

To Satisfy Gaps in Competitive Positioning

The competitive positioning of smaller-sized and family-owned manufacturers will depend on their ability to support low volume/high mix orders. Many of these companies struggle to finance purchases of advanced manufacturing equipment, without which they are limited to low volume jobs. In the past, these manufacturers were family-owned, intending to sustain the business for long term family benefit, but now to remain competitive, these manufacturers often seek outside financing from VCs that can threaten supplier sustainability.

4.2.3. Actionable Takeaways

The following are some actions to strengthen alignment of Connecticut's A&D industry to the advanced manufacturing landscape:

Recommendations:

- **Encourage companies to begin adapting** to advanced manufacturing trends.
- **Develop a flexible hybrid electronics industry**.
- **Invest in larger print space additive manufacturing.** This investment will require investigation into how fabricated part certification can be done cost effectively and timely.
- **Facilitate training in cybersecurity and export control.** Smaller manufacturers would greatly benefit.
- **Assist companies with software-based infrastructure acquisitions.** Many members of the supply chain currently lack software-based infrastructure to support digital thread processes.
- **Support ongoing development of a composites manufacturing COE.**

4.3. Workforce

This section provides an overview of Connecticut's A&D manufacturing workforce landscape and addresses the sufficiency of resources to sustain and grow it.

4.3.1. Connecticut Workforce Landscape

Connecticut's workforce landscape can be understood by combining the educational institution perspective with a manufacturing workforce survey.

4.3.1.1. Educational Institution Perspective

The study included visits to educational institution stakeholders, providing insight into the current A&D manufacturing workforce landscape in Connecticut. The workforce demand is high, with companies constantly seeking new talent. Institutions in Connecticut are providing a skilled

workforce to meet these needs, but do not possess the output capacity to fully satisfy the demand, leaving a workforce gap.

Capabilities and Strengths

- **Motivated educational leadership.** These leaders are continually seeking ways to improve the programs for their students with job placement as the ultimate goal. They integrate new methods to enhance the student experience and education and upgrade facilities and curriculum to align student experience to the job environment. They instill proper work habits into their students to help them excel when hired. The leaders put their students in a position to succeed, providing industry with quality employees.
- **Aligned curriculum to produce a skilled workforce.** Each school provides training in machining practices, such as mill, lathe and Computer Numerical Control (CNC) machining, as well as tolerancing. The students become proficient at manual and automated versions of these processes. The curriculum has been adapted to include software coding. In aggregate, this increases the relevance of the students' educational experience to current and future job requirements, ultimately yielding a workforce requiring less on-the-job training.
- **High quality, experienced instructors.** The instructors at the educational institutions yield a well-prepared workforce aligned with industry needs. Connecticut schools recruit instructors with industry experience, usually found through personal connections or industry affiliations. These instructors are mentors who offer key insights into working in the manufacturing industry.

Current Challenges

- **Capacity.** Connecticut education institutions produce well-prepared workforce entrants, but are currently unable to meet industry demand. This is due to school throughput capacity. The educational facility scales and instructor availability are both throughput constraints. Schools have more applicants than they can support.
- **Mobility.** After the students graduate, transportation options prevent them from reaching jobs that are not local. A contributing factor is that many current students do not get drivers licenses, and continue to live with their parents. Transportation challenges arise for employment, internship, and co-op opportunities that are far away.

Future Challenges

- **Rapidly changing curriculum and limited funding.** Educational institutions have concerns about major curriculum changes and program funding. As industry adapts to new

technologies, the workforce must adapt their skills. This forces schools to change curriculum to teach new skills, which in turn necessitates the acquisition of new machines, instructors, and teaching tools, all of which require additional funding. The latest federal funding cycle provided some support paths for upgrading and sustaining facilities, but as these funds run out, continued support is uncertain, risking adaptation delay and program sustainability.

Opportunities for improvement

- **Promote increased awareness of manufacturing technology trends.** Improved awareness will help schools and industry focus on the workforce skills needed now and into the future. This promotion can be facilitated by participation in Manufacturing USA Centers.
- **Invest in training infrastructure.** New infrastructure is needed to train students regarding the use of new technologies.
- **Increase awareness regarding export control and cybersecurity.** Sensitive DoD information must be protected. Students need to learn proper methods for information control.
- **Continue support for apprenticeship programs.** These provide work environment job context for the students and streamline hiring by creating a pipeline for students straight from the schools to the manufacturers. Expansion of machinist apprenticeships is particularly important.

4.3.1.2. Connecticut Manufacturing Workforce Survey

The "2017 Survey of Connecticut Manufacturing Workforce Needs"[29] addresses hiring expectations, skill requirements, and workforce projections for the Connecticut manufacturing industry over the next three years (CBIA, 2017). The survey captures the future expectations of its respondents and identifies areas of greatest need. For instance, respondents identified the most difficult positions to fill: Tool and die makers; CNC programmers; engineers; CNC machinists; Computer Augmented Design and Manufacturing (CAD/AM) technicians; and electrical/electronic technicians (see **Figure 4-3**). By 2018, respondents anticipate approximately 13,601 manufacturing job openings (see **Figure 4-4**).

[29] The survey represents a combined effort between the Connecticut Business & Industry Association (CBIA), the National Science Foundation Regional Center for Next Generation Manufacturing, and Connecticut State Colleges and Universities.

Despite relatively high starting salaries for hourly manufacturing and production positions (ranging from $29, 000 to $69,000), Connecticut's manufacturers are struggling to attract workers, particularly millennials and post-millennials.[xxxi] Young individuals who might find satisfaction in advanced manufacturing are discouraged by persistent, negative stereotypes. True, positive impressions of modern manufacturing must be propagated instead.

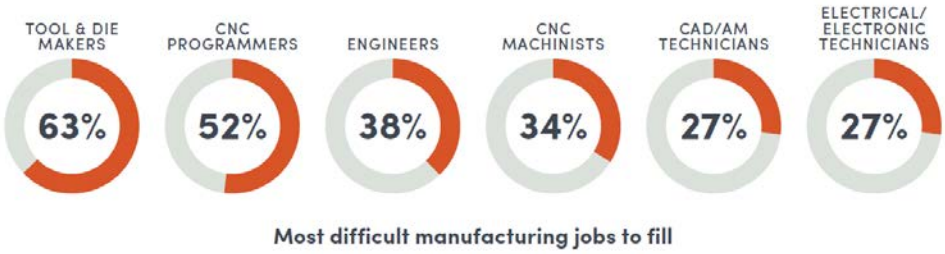


Figure 4-3: Most Difficult Manufacturing Jobs to Fill (CBIA, p. 5)

Demand for Skilled Workers in Manufacturing by 2018

POSITION	JOB NEEDS STATEWIDE
Entry-level	3,324
Engineers	2,245
Electrical engineers	1,752
Welders	1,650
Mechanical engineers	1,236
Machinists	1,048
Quality control	821
Warehousing	508
CNC machinists	407
Tool & die makers	282
CNC programmers	156
Transportation	86
CAD/AM	55
Drivers	31
TOTAL	13,601

Figure 4-4. Demand for Skilled Workers in Manufacturing by 2018 (CBIA, p. 1)

Recruiting & Hiring the Next Generation

The survey projections indicated 12% of Connecticut manufacturing workforce will retire by 2020.[xxxii] Eighty-six percent (86%) of the respondents expect flat or increased workforce growth in the near term.[xxxiii] To replace retirees, the surveyed manufacturers plan to train their incumbent workforce (79%) and use targeted hiring initiatives (72%); only 26% of respondents planned to replace retirees with automated tools or processes.[xxxiv]

Relative to new hires, employers tend to expect them to possess the requisite skills, and rarely offer on-the-job training for critical areas like engineering-specific skills, technical writing and comprehension, critical thinking and problem solving, CNC machining and programming, simulation, modeling and analysis, and additive manufacturing.[xxxv] Moreover, as captured in **Figure 4-5**, respondents indicated that new hires fell short in overall employability (including punctuality and work ethic) and lack of technical skills.

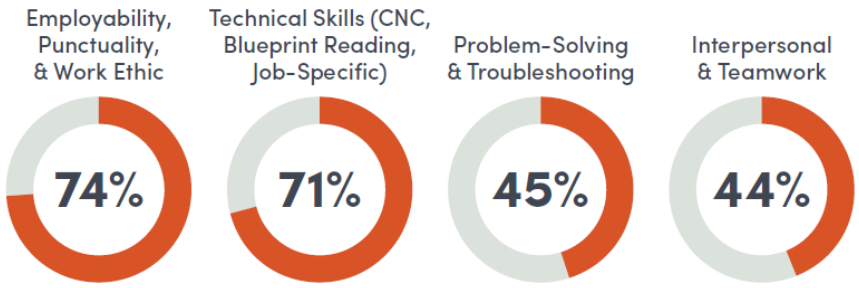


Figure 4-5 Lacking Skill Sets in Recent Hires per Connecticut Manufacturing Survey Respondents (CBIA, p. 3)

New Hire Satisfaction

Surveyed manufacturers reported satisfaction with hires possessing higher levels of education; for instance, employees who had completed relevant certificate programs at Connecticut's community colleges or held associate degrees performed strongly (68% and 66%, satisfaction respectively).[xxxvi] Employers felt even greater satisfaction with "highly qualified" graduates from Connecticut's major universities and private occupational schools (78% and 74%, respectively).[xxxvii] Significantly lower satisfaction rates were noted for hires with only a traditional high school education (42% satisfied; 15% dissatisfied).[xxxviii] However, 76% of respondents indicated satisfaction with technical high school graduates, placing them in a comparable category with the "highly qualified" candidates from the university system.[xxxix]

The CBIA survey respondents provided recommendations to educational institutions to close gaps in skills. The most common suggestion was to increase the emphasis on technical training and skills (60%), which was only slightly higher than integrating and improving employability skills (57%).[xl] Meanwhile, during Draper's discussions with local prime contractors and OEMs, the most desired workforce characteristics were work-ethic and interpersonal skills. One prime contractor explicitly stated that any technical skills or expertise beyond technical high school was irrelevant in their staffing decisions and instead the hiring focus was on "soft skills."

Other survey recommendations include improved access to internships (38%) to provide opportunities to understand the differences between work and academic environments, create opportunities for career development (35%), and "more rigorous preparation in basic skills like reading, writing and math (28%)."[xli]

4.3.2. Connecticut Workforce Sufficiency

The sufficiency of the A&D workforce in Connecticut was assessed based on workforce availability, trained workforce supply and demand, capture subsidies, and advanced manufacturing skills.

4.3.2.1. Workforce Availability

The number of skilled employees able to meet an employment need is referred to as workforce availability. Two main factors currently affecting A&D manufacturing workforce availability in Connecticut are a lack of mobility and low interest in manufacturing careers. These factors limit the accessibility and quantity of capable employees.

Mobility

A key factor in workforce availability is access to prospective employers by the transportation infrastructure. Connecticut has many major highways, and some public transportation options such as trains and buses. Many people utilize highways to drive to work, but public transportation has gaps in coverage. This limits employment options for many prospective employees who do not have cars, largely constraining them to jobs near to their homes. Consequently, jobs in a given region may not be filled if there are not enough trained workforce in the vicinity. Furthermore, manufacturing facilities tend to cover large areas of land, often adding a significant distance between the facility perimeter and an employee's work station or office.

Recommendation: Evaluate options for increasing accessibility to public transportation between residential areas and manufacturing facilities (e.g., add a bus stop, subsidized transportation, rideshare incentives, etc.)

Manufacturing Unattractiveness

An influential factor for A&D manufacturing workforce availability is low student interest. The average age of the manufacturing workforce is higher today than ever before due to delayed retirements and a low influx of new talent, leaving companies vulnerable to workforce gaps. Contributing to this gap is limited exposure to manufacturing career opportunities in elementary, middle and high school curricula.

Recommendation: Establish programs teaching elementary and middle-school students about manufacturing principles.

A second factor in low student interest is negative stereotypes about manufacturing careers. These careers are perceived as unattractive and "dirty" labor jobs with little promise of personal or career fulfillment.

Recommendation: Expand on successful programs such as "Dream it. Do it.", building them into early education curricula, if possible.

A third factor is the perceived importance of a college degree. Parents and guidance counselors push students to go to college for a number of reasons including higher earnings expectations, societal pressures, etc. This prevents many students from exploring alternate career paths like manufacturing that they may find to be more rewarding personally and financially.

Recommendation: Build awareness of the benefits of jobs in high-tech manufacturing in parallel with the college application process in high-school counseling programs.

4.3.2.2. Trained Workforce Supply & Demand

Connecticut has 14 Technical High Schools that each graduate 25-30 manufacturing students every year. The supply of instructors is a limiting factor in the size of technical school programs. Each instructor can manage at most 18 students as they work on machines. CCAT holds eight annual summer academies that expose 200 students to manufacturing, and there are many more applicants than slots. There is more interest in manufacturing than CCAT and the technical high schools are able to meet, let alone to meet the needs of a growing industry.

Recommendation: Further increase technical high school capacity by simplifying the instructor certification process and providing incentives to skilled retirement or pre-retirement workforce members to explore a second career in manufacturing / trades education.

4.3.2.3. Capture Subsidies (CAMI)

According to the CAMI June 2015 newsletter, Connecticut was awarded a $15 million Connecticut Advanced Manufacturing Initiative grant in September 2014 that has been used to expand the academic and physical advanced manufacturing training infrastructure. The CAMI grant has strengthened relationships with Advanced Manufacturing within the state, including partnerships with industry, the state's Regional Workforce Investment Boards, and the Connecticut Technical High School System. (CAMI, 2015).

Once the CAMI funding is expended, Connecticut will need a new source of funding to continue purchasing or renting new equipment, and to continue programs that enable students to keep their manufacturing skills relevant.

Recommendation: Pursue other long-term, sustained funding sources such as DPA Title III funding or public-private partnerships.

4.3.2.4. Advanced Manufacturing Skills

Advanced manufacturing technology, like additive manufacturing, is starting to make its way into the educational system and training programs. Technical high schools are also incorporating composites, mechatronics, and welding programs into their curriculums since there is high demand for those skill sets. Funding and infrastructure are the main limitations for advanced manufacturing training in technical high schools and universities.

Connecticut is well-regarded for its manufacturing workforce development, in large part due to CCAT's educational programs. CCAT provides workforce training for local manufacturers and educators. The Manufacturing Career Advancement program offers training that provides the manufacturing sector with a qualified talent pipeline. Applicable CCAT programs have three objectives:

1. **Increasing awareness** of manufacturing careers and opportunities for students, their families, jobseekers, educators and government partners.
2. **Promoting basic and technical skills assessment** with nationally portable credentials for students, incumbent workers and dislocated workers.
3. **Match jobseekers with manufacturers** who have available positions.

CCAT's professional development programs equip educators with tools to increase STEM achievement among students. This includes developing engaging curriculums, providing best practice models, and providing hands-on classroom supplies.

Recommendation: Continue support to CCAT and related programs and ensure their curriculum is evolving with the skillset required to support advanced manufacturing.

4.3.1. Actionable Takeaways

The following are some additional actions to address A&D manufacturing workforce supply and preparation issues:

Recommendations:

- **Encourage companies to begin adapting** to advanced manufacturing.
- **Start teaching students about manufacturing no later than middle school.** By educating children from a young age, more will consider manufacturing as a career choice.
- **Invest in educational training and infrastructure**. This should include resources to address emerging advanced manufacturing technologies.
- **Strengthen apprenticeship programs**. Include training within a workplace environment. Emphasize machinist apprenticeships given many associated job opportunities.

5. Connecticut Discriminators and Core Competencies

This section highlights what Connecticut is doing well, creating the competitive *and* strategic advantages that position Connecticut for growth in A&D.

5.1. Connecticut Discriminators

A discriminator is a competitive advantage that sets one entity apart from another. This section describes three areas that are discriminators for Connecticut: Centers of Excellence, the Manufacturing Innovation Fund (MIF), and CCAT.

5.1.1. Centers of Excellence

Connecticut has the following Centers of Excellence:

Innovation Technology Center (ITC). The ITC is run by CCAT. It provides Connecticut manufacturers with access to cutting-edge equipment in multi-axis machining, ceramics machining, additive manufacturing and 3D inspection. A&D suppliers can bring sample parts to this center to test out equipment before making a decision to purchase.

Regional Center for Next Generation Manufacturing (RCNGM). The RCNGM[30] is a National Science Foundation COE that provides resources to students and educators to explore technology-based careers. RCNGM provides courses in advanced manufacturing techniques, develops marketing materials to recruit students into manufacturing careers, and bridges gaps between 2- and 4-year manufacturing programs.

Composites Manufacturing COE. A Composites Manufacturing COE is under development as a joint effort between CCAT and Pratt & Whitney. It will be the first COE devoted to composites manufacturing and could become a nationwide asset. The center's location benefits the A&D supply chain given the push to incorporate composite components into engine designs.

5.1.2. Manufacturing Innovation Fund

According to the Manufacturing Innovation Fund 2016 Annual Report, the Connecticut legislature established the MIF in 2014 to help the state's manufacturers become globally competitive. MIF was authorized $60 million through 2017 to support precision manufacturing capabilities, manufacturing R&D initiatives, and worker training programs. It bolsters the state's defense footprint, fosters public/private collaborations and expands manufacturing in Connecticut's 37 Distressed Cities For the first time in decades, Connecticut's manufacturing sector is growing with

[30] For more information on RCNGM, see the link: https://www.cbia.com/resources/workforce-development/programs/regional-center-next-generation-manufacturing/

expansion in aerospace, submarine construction, and other advanced manufacturing sectors. (Connecticut DECD, 2016).

MIF invested almost $31 million alongside 425 manufacturers as of June 30, 2016, with funds dispersed into Workforce Development (48%), Supplier Network (34%), Innovation (11%), and Energy (2%).[xlii] As a result, approximately 2,700 workers were trained, and 1,911 manufacturing jobs were either created or retained.[xliii]

5.1.2.1. Investment in Workforce Development: Training and Retention

Workforce training and retention efforts, MIF's largest programs, focus on three initiatives: The Incumbent Worker Training Program, the Apprenticeship Program, and the Connecticut Dream It. Do It. Program

Incumbent Worker Training Program. The Incumbent Worker Training Program upgrades current employee skills to enable their organizations to leverage advanced technologies, improve overall productivity, and open up new revenue streams. As of 2016, this program had invested $7 million to train 2,652 workers (20% were promoted), and create or retain 1,530 jobs. (Connecticut DECD, 2016, p. 6)

Apprenticeship Program. The Apprenticeship Program combines on-the-job training with classroom instruction for three to four years to prepare individuals for entry into Connecticut's manufacturing industry. Upon completion, the apprentice is granted "journey-person status" and a nationally recognized Certificate of Completion. As of 2016, the program had invested almost $7.8 million to train 48 apprentices across ten schools and eighteen companies. (Connecticut DECD, 2016, p. 7)

Connecticut Dream It. Do It.(CTDIDI). Part of a nationwide campaign by The National Association of Manufacturers and the Manufacturing Institute, CTDIDI spreads a positive message of today's manufacturing workplace. Resources and activities are provided to students, parents, and families to introduce them to the opportunities of 21st century manufacturing, including cutting-edge, well-paying jobs. As of 2016, CTDIDI—recognized as a national model by the Manufacturing Institute—had invested more than $266,000 to sponsor 108 events directly impacting more than 1,000 students, 200 educators, and 32 companies. (Connecticut DECD, 2016, p. 8)

Young Manufacturer's Academy. The Young Manufacturer's Academy provides a hands-on introduction to advanced manufacturing to students entering grades 7-9. Students are provided the

opportunity to interact with manufacturers and practice 21st century skills in collaboration, problem solving, critical thinking and communication. As of 2016, MIF had invested over $400,000 on 142 students from 29 cities and towns. (Connecticut DECD, 2016, p. 8)

5.1.2.2. Investment in Supplier Network: Voucher Program

As of 2016, the Manufacturing Voucher Program invested nearly $8.2 million in 250 matching grants, ranging from $10,000 to $50,000, to 155 eligible companies to acquire the resources needed to bring their operations in line with the latest product development and manufacturing technology. As a result of this investment, 381 jobs were created or retained. (Connecticut DECD, 2016, p. 9)

5.1.2.3. Investment in Innovation

MIF's Innovation efforts introduce advanced technologies from academic and research institutions to Connecticut's manufacturers. This is realized through two programs: The RADE 2 and the Advanced Composites Initiative. (Connecticut DECD, 2016, p. 11)

Regional Aerospace & Defense Exchange (RADE 2). The RADE 2 program is a DoD Office of Economic Adjustment (OEA) program that partners *CCAT with the research and prototype-centered* institutions *of Draper (Cambridge, MA), Belcan Engineering Group (Cincinnati, OH), and the Center for Regional Economic Competitiveness (Arlington, VA) to facilitate expansion of Connecticut's participation in the A&D sector.* An award of $4.5 million was provided to facilitate the New England coalition. (Connecticut DECD, 2016, p. 11)

Advanced Composites Initiative. The Advanced Composites Initiative aims to “demonstrate a new approach to dynamic, adaptive, and mistake-proof machining of advanced, high value structural composites using technologies that are applicable to current and future platforms and components.” MIF has invested $2.9 million to assist manufacturers with process improvements and advanced composite material manufacturing proficiency. (Connecticut DECD, 2016, p. 11).

5.1.2.4. Investment in Energy: Energy on the Line

Connecticut's energy cost is the second highest in the nation, and manufacturing consumes 10% of the state's total energy. For the manufacturing sector to be competitive, it must reduce long term energy expenses. The Energy on the Line program, administered through Connecticut Green Bank, has made $800,000 in public and $10 million in private sector investments, providing up to $40,000 per energy improvement project. (Connecticut DECD, 2016, p. 10).

5.1.3. CCAT

Capture Subsidies

CCAT captures subsidies to support its own operations, and to provide opportunities for educators and manufacturers within the state to obtain funding. For example, CCAT helped introduce the SBIR[31] program to Connecticut entrepreneurs to gain startup capital and initiated the Small Business Incubator Program (SBIP) to fund technology based startups. CCAT also developed 3 year cost sharing partnerships through the America Makes[32] program to explore innovations in additive manufacturing.

Locality

A great benefit of CCAT for the Connecticut A&D supply chain is its central location in the middle of "Aerospace Ally." It is less than an hour's drive from most manufacturers within the state. This location facilitates collaborative projects and utilization of CCAT's onsite equipment. It is a short car ride to bring parts to CCAT's location for evaluation and testing.

5.2. Connecticut Manufacturing Core Competencies

Core competencies refer to the main strengths and strategic advantages of a company or organization. The following section details the core competencies of Connecticut's A&D supply chain: Manufacturing composition and the capability for high mix/low volume production.

5.2.1. Manufacturing Composition within the State

The following overlays (**Figure 5-1**, **Figure 5-2**, **Figure 5-3**, and **Figure 5-4)** show different comparative views of manufacturing locations, universities and prime contractors. The final figure directly correlates primes[33] with universities.

- **Advanced Manufacturing facilities** create products using specialized and emerging techniques. Advanced manufacturing products fall into the following categories: Aircraft, electronics, C4 (command, control, communications, computers), ground vehicles, materials, munitions and missiles, space sector, and shipbuilding.
- **Traditional Manufacturing facilities c**reate products using well-established techniques.
- **Manufacturing/Engineering Education facilities** are academic institutions that have programs that teach manufacturing or engineering skills.

[31] For more information on SBIR, see the link: https://www.sbir.gov/
[32] For more information on America Makes, see the link: https://www.americamakes.us/
[33] The 3 primes considered were Sikorsky, Electric Boat, and Pratt & Whitney.

- **Prime/OEM facilities** produce the final products to sell to customers. An OEM is a manufacturer of whole products sold to an end user, while prime contractors are typically OEMs who are designated by the DoD as the single point of purchase for a product or solution.

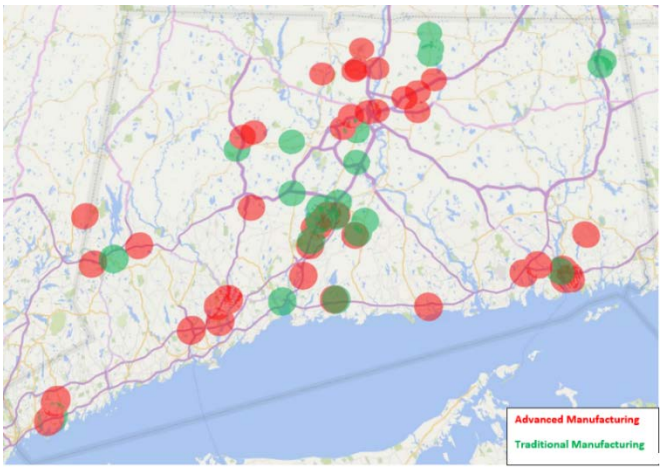


Figure 5-1: Overlay of Advanced vs. Traditional Manufacturing in Connecticut

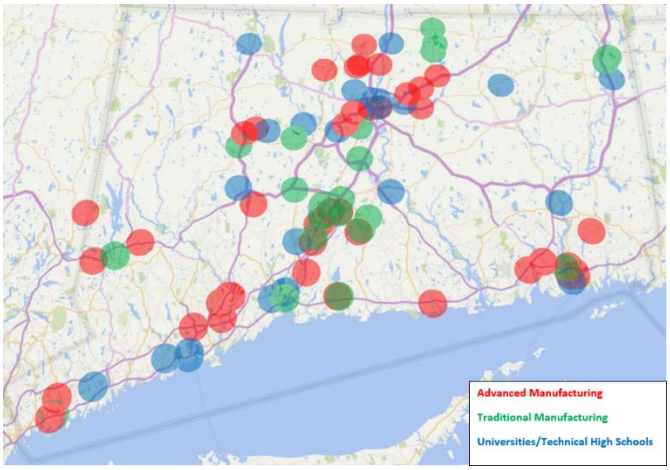


Figure 5-2: Overlay of Manufacturing and University Overlay in Connecticut

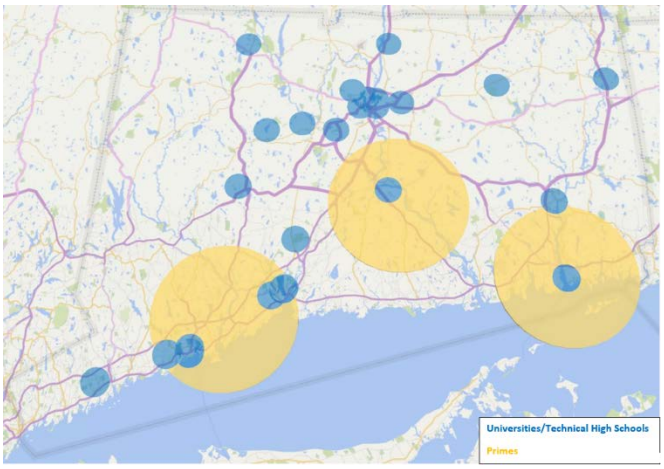


Figure 5-3: Overlay of Universities with Prime overlay in Connecticut

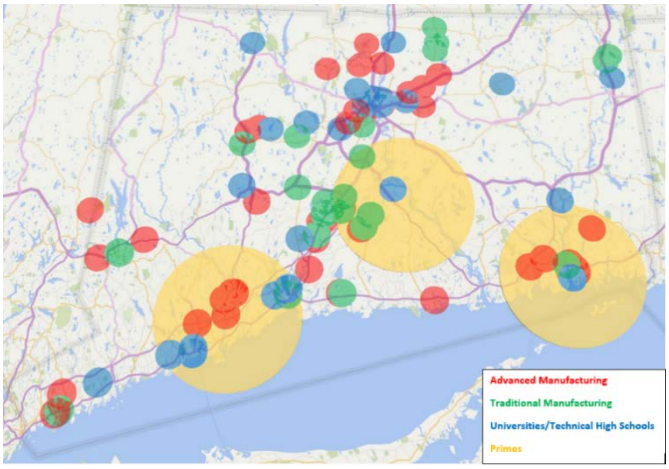


Figure 5-4: Overlay of Manufacturers and Universities with Prime overlay in Connecticut

5.2.2. High Mix, Low Volume

The A&D market demands a variety of products, but often with low—and variable—sales volume opportunities. In order to address the variable order quantities challenge, many companies developed capabilities for high mix, low volume production. Based on Lean Manufacturing principles, this provides flexibility in a production line with minimal setup time. The Connecticut

A&D supply chain includes many SME manufacturers that have flexibility due to small scale operations. While these companies developed this flexibility due to their operational environment, only a small number incorporated Lean Manufacturing practices. This leaves opportunity for improved production capability by many of these companies.

6. Strategic Recommendations

This section details the strategic recommendations for strengthening the A&D supply chain within the State of Connecticut.

6.1. A Blueprint for Strategic Innovation: The Three Horizons Model

The Three Horizons model for innovation is a framework enabling comprehension of the current and future states of a business innovation environment, guiding the strategy for transitioning an organization from sustaining existing business to transforming it for the future.[34] For the purposes of this report, Three Horizons was adapted to provide a blueprint for strategic innovation.

6.1.1. Connecticut's Three Horizons for Strengthening the A&D Supply Chain

This section summarizes how Three Horizons was applied to derive strategic recommendations for strengthening the A&D supply chain within Connecticut. Strategic recommendations are made in the areas of resource sufficiency, competitive positioning, and alignment.

I. **Sustaining Connecticut's Manufacturing Base**: Strategic recommendations for this horizon focus on identified gaps in resources that might cause losses in Connecticut's "as-is" manufacturing base (i.e., supplier power).

II. **Connecticut's Competitiveness through Disruptive Innovation**: Strategic recommendations for this horizon focus on identified gaps in competitive positioning, particularly relative to transitioning existing manufacturing into what is needed during the third horizon.

III. **Transforming and Leading the A&D Industry**: In this horizon, Connecticut can lead industry by transforming manufacturing to align with future customer needs.

6.2. Connecticut's First Innovation Horizon: Sustain Supplier Power

The first horizon recommendations extend and defend Connecticut's current discriminators and core competencies, focused on closing gaps in existing resources. Two areas of importance were identified: Strengthening manufacturing process technology to prepare for an increase in production and quality demands; and improving the availability of both the current and prospective manufacturing workforce.

[34] Numerous references exist, with various twists on the same theme. See: http://www.agilityinnovation.com/index.php/unique-value-propositions/three-horizon-methodology
http://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/enduring-ideas-the-three-horizons-of-growth

6.2.1. Manufacturing Technology Recommendations: RADE Supplier Program

As part of the RADE initiative, Connecticut DECD asked Draper to provide manufacturing process improvement support to Connecticut A&D suppliers. This initiative prepared the supply chain for increased production and quality demands on current major DoD programs, with an emphasis on the deployment of advanced metrology and manufacturing techniques. The program had two phases: First, support CCAT in the selection of new equipment; and second, perform individual supplier projects with A&D component manufacturers.[35]

The RADE Supplier program informed the content of this volume by providing an opportunity to engage with Connecticut's supply chain.

6.2.2. Workforce Recommendations

This section covers strategic recommendations for strengthening the availability of the current and prospective manufacturing workforce to sustain the existing A&D industry within Connecticut.

Current workforce availability

The primary driver for the availability of the current manufacturing workforce is *mobility*. An emerging trend involves millennials who do not want to travel far between home and work. If they must travel, they prefer public transportation over personal vehicles.

Recommendation: Add public transportation options between proximal [36] workforce population (residential) centers and manufacturing facilities for primes and key suppliers.

Caution: This may be an entry-level phenomenon, and it is unclear how long this transportation accommodation must be sustained. An initial study followed by annual assessments is recommended.

Prospective workforce development

Three drivers for the availability of the prospective workforce needed to sustain the existing A&D industry in Connecticut are: Training capacity, manufacturing attractiveness, and advanced technology education.

Training capacity

Connecticut's educational institutions for training new machinists already operate at capacity. Current demand for machinists exceeds this capacity, resulting in waiting lists to enter the training

[35] Please refer to Volume I of this report for a more detailed description of the specific equipment recommendations made to CCAT and summaries of the individual supplier projects.
[36] *Proximal*: a region encompassing sufficient workforce to satisfy the need (likely within a 30 min travel time from a given manufacturing facility).

programs. The demand at higher educational institutions is largely from individuals who have finished high-school (and sometimes college) but have not found meaningful work. Additionally, these institutions promise stable and well-paid employment to prospective students in low-paying service jobs.

The main training capacity constraint for the educational institutions is a lack of qualified instructors. The best source of instructors is practicing machinists "aging out" of the workforce. There is a lack of awareness regarding this second career option, and human resource transition coordinators do not screen for it.

Recommendations:

- Encourage primes/suppliers to transition qualified retiring workforce members into teaching.
- Expedite accreditation and training for candidates with manufacturing experience who demonstrate aptitude for teaching.

Manufacturing attractiveness

Many in the younger generations do not find manufacturing careers attractive. Consequently, some educational institutions are concerned about capturing enough incoming workforce candidates to meet industry sustainment needs, let alone growth.

Recommendation: Sponsor a public awareness campaign targeted at children about the benefits of pursuing a career in manufacturing.

Advanced technology education

Advanced technologies such as additive manufacturing and advanced composites are disciplines about which incoming members of the A&D manufacturing workforce will need expertise. The educational institutions in the state are open to incorporating these subjects into their curriculums, but need funds and equipment to stand-up applicable new courses.

Recommendations:

- The MIF should provide support for advanced technology training.
- Encourage primes/suppliers to offer manufacturing training scholarships.

6.3. Connecticut's Second Innovation Horizon: Disrupt to Compete

Connecticut is at the front edge of the disruption (second) horizon. Based on the discussions with stakeholders, efforts for a sustainment of the current industry base (first horizon) are already underway through state programs, subsidies, and partnerships. Some of these need to be extended to

more fully secure the base. This section describes bridging from the sustainment horizon to the disruption (second) innovation horizon by identifying efforts that need to be continued, enhanced, or initiated to launch Connecticut into the transformational (third) horizon.

6.3.1. Supplier Base Growth: Connecticut Certified Supplier Program

A state certification program provides assistance to—and levies expectations or requirements onto—its supply base to maintain compliance with anticipated regulatory (e.g., MRL and AS6500) and technology (e.g., advanced composites, cybersecurity) updates. A Certified Supplier Program would provide the following benefits:

- **Subsidies to enable business capture** through support for participation in technical symposia or other venues within the national market to showcase Connecticut's capabilities; capitalization to enhance capabilities (e.g., advanced tooling, maker spaces); aggregating suppliers into COEs. As a COE, suppliers can better pursue work from primes in other states.
- **Capitalization for equipment modernization.** Provide state grants for renting or acquiring qualified and secure equipment or equipment enhancements required to perform advanced manufacturing that otherwise would be beyond the reach of small businesses.
- **Create more advanced manufacturing training opportunity.** Aggregate and standardize training to enable the workforce to gain new skills, take refresher courses, obtain certifications and/or certification updates, and establish a "Connecticut-state certified supplier program".
- **Reduce sensitivity to volatility through collaboration.** Provide comprehensive A&D supply chain offerings with breadth and depth. Connecticut Certified Suppliers would be the basis for a trusted, "preferred supplier" status with prime contractors, offering a guarantee of "good parts in the door, on time," and addressing the high-mix, low-volume capability gap. *A collaborative of Connecticut Certified Suppliers would contribute robustness and resilience of the state economy making the industrial base less sensitive to volatility of any single customer segment (i.e., Commercial or DoD).* The strategy for long-term viability of the industrial base is diversification. Similar restructuring efforts have been successful in large companies (e.g. Boeing), creating business segments in complementary markets.

Recommendation: Create and deploy a Connecticut Certified Supplier program.

6.3.2. Prime Contractor

- **Training:** Security practitioner training is an ongoing requirement for prime contractors. This spans: International Traffic in Arms Regulation (ITAR), Export Administration Regulations (EAR), Information Technology Security Evaluation Criteria (ITSEC), Communication Security (COMSEC), and Operations Security (OPSEC). Refer to **Section 6.3.3** for descriptions of these types of security regulations and practices. DoD security clearance-holder training is another ongoing requirement for some prime contractors. This involves meeting certain background checks and personal conduct criteria.
- **Alignment:** As "prime members" of a Connecticut Certified Supplier Program, this would require staying current with regulatory programs and requirements and pursuing opportunities to represent the state at standards bodies (national and international) and working groups.
- **Footprint:** Footprint/presence of prime contractors in Connecticut would be realized through synergy with urban development projects, and infrastructure strategic plans.

Recommendation: Tap synergy between Primes and infrastructure

- Encourage footprint/presence of prime contractors by tapping into synergy with urban development projects and infrastructure strategic plans.

6.3.3. Workforce

Security Awareness Training

Security awareness is an important concern in manufacturing, particularly in the A&D sector. The following is a list of established areas for protecting information and technology that is relevant for supply chain providers:

- **ITAR.** ITAR[37] restricts the export[38] of technologies with defense and military applications. It is becoming common for supply chain manufacturers to be expected or required to be "ITAR certified" or "ITAR compliant."
- **EAR.** Similar to ITAR, EAR[39] is controlled by the US Department of Commerce.
- **ITSEC.** Evaluation criteria used to assess a product's computer security, largely replaced by Common Criteria[40].
- **COMSEC.** Protecting classified and unclassified traffic on secured networks, including physical security of COMSEC equipment and associated cryptographic keying material.

[37] For more information on ITAR regulations, see the link: https://www.pmddtc.state.gov/regulations_laws/itar.html
[38] For more information on the U.S. Export Control System, see the link: https://www.state.gov/strategictrade/overview/
[39] For more information on EAR regulations, see the link: https://www.bis.doc.gov/index.php/regulations/export-administration-regulations-ear
[40] For more information on ITSEC/Common Criteria, see the link: https://www.commoncriteriaportal.org/files/ccfiles/CCPART1V3.1R4.pdf

- **OPSEC.** Protecting operations related information or processes that can be used against national interests.[41]

In addition, security training[42] should be made available to employees in the areas of:

- Password selection and protection,
- Insider threats,
- Cybersecurity awareness covering topics such as spear phishing and ransomware attacks,
- Social engineering threats, and
- Safe use of cloud services, as warranted.

Recommendation: Address security awareness training

- Ensure that primes and suppliers to provide training to their employees on critical security awareness, with an emphasis on cybersecurity.
- Encourage educational institutions to provide security training early and often.

Clearance Awareness Training

Primes need employees who are cleared to access, modify and create classified information in order to execute contracts with the DoD. Acquiring a security clearance has a long lead time, and is an extensive and sometimes unnecessarily exhaustive process that goes more smoothly if an employee is familiar with the expectations in advance. As demand for trusted manufacturing increases and security requirements in manufacturing become more stringent, there will be a need for cleared employees in all parts of the supply chain.

Recommendation: Address clearance awareness training

- Incorporate clearance training programs into high school and college curricula to educate students about the vetting process.

6.4. Connecticut's Third Innovation Horizon: Transform & Lead

The third horizon represents a transformed A&D industry, an evolution driven by factors such as fundamental technology changes in A&D systems and their means of manufacture, along with substantial changes in the structure of the industry (e.g., due to consolidations, divestitures, and new start displacements of previously well-established companies). Moreover, changing A&D industry markets is another trend to track (e.g., as manifested by an evolved customer base with new classes

[41] For more information on OPSEC, see the links: http://www.dodea.edu/offices/safety/opsec.cfm and http://www.wrc.noaa.gov/wrso/briefings/opsec%20overview.ppt

[42] NIST makes available guidelines, recommendations and studies on the security of information systems. More information can be found at the link: https://csrc.nist.gov/publications

of user needs and expectations). However, effective participation by the government of Connecticut in planning for the effects of an evolving A&D industry can assure that the industry will continue to be a major contributor to the state economy in coming decades, providing many jobs with excellent pay.

Even as the A&D industry changes, an important consideration is that A&D systems may remain in use for decades (so-called legacy systems). That means that although the leading edge of customer needs and industry trends will transform, a segment of the industry will need to create parts and continue services to sustain legacy system use. It is in Connecticut's interest to enable a portion of its A&D industrial base to serve the needs of legacy systems. That industry sector will likely evolve to use more advanced manufacturing processes to produce legacy system parts than applied at the inception of the legacy systems. Consequently, parallel effort must be applied to prove that original legacy system part specifications are fully met and continued, and that proper system function is ensured even when new manufacturing processes are applied to the fabrication of their replacements. This means that part of the A&D industry support for legacy systems involves on-going Verification and Validation (V&V) efforts – a specialized A&D business function that is critical to ongoing industry success.

The following subsections address topics applicable to preparing for a strong third horizon A&D industry in Connecticut. **Section 6.4.1** discusses an important market-change trend on the third horizon along with associated capability options/needs to be addressed. **Section 6.4.2** discusses a candidate sponsorship path both for sustaining legacy system support capabilities and for creating/applying multi-use manufacturing capabilities. **Section 6.4.3** addresses a specific third-horizon workforce preparation challenge, **Section 6.4.4** discusses a class of organization for which sponsorship can be pursued to prepare the state well for the needs of the third horizon A&D industry. **Section 6.4.5** identifies Institutes already set up for long-term manufacturing development and deployment that could be leveraged by A&D industry to facilitate adaptation necessary to be successful on the third horizon.

6.4.1. High Mix, Low Volume

As technology advances, A&D systems get more complex, and their individual applications often grow narrower, while the range of applications for A&D systems continues to expand. This leads to a market for a greater variety of A&D products, but often with low sales volume opportunities, which is known as a high mix, low volume market. This is an important trend for the third horizon A&D industry. Implications to the industry include the following:

- **Non-recurring manufacturing costs must be controlled**. This includes design and "tooling" costs. They must be amortized over a production run, which is constrained for small runs. (Tooling in this application means the devices that will be used for system manufacture.) Two example strategies can contribute to meeting this need: Model-Based Engineering (MBE) to reduce the number of personnel and time spans needed for individual system design efforts; and application of highly adaptable "tooling" such as 3D printers and additive manufacturing equipment that that can readily be adapted for repeated use over a wide range of parts fabrication applications (i.e., one set of "tooling" serving many uses) thereby enabling amortization of the acquisition capital costs to be spread over many projects.
- **Dependence of unit manufacturing costs on production volume should be limited.** Reliance on large volume purchases for getting a lower unit cost will not be an option for many future customers. Consequently, set up costs for a given production run must be kept to a minimum. The trend toward making manufacturing equipment fully digital (computerized) can contribute to this need by limiting much of what needs to be done to reprogram manufacturing equipment to address new production needs specifics. There are two aspects of what will be needed to make this reprogramming process cost effective: 1) Development of versatile, user friendly equipment software, which is a new A&D-related industry sector to be nurtured for economic/job-creation impact; 2) A workforce on factory floors that is skilled at manipulating/adapting equipment software to new customer needs. The digital transformation of manufacturing poses cybersecurity risks that must be mitigated. All digital information input pathways to manufacturing equipment are also potential cyber intrusion routes. Malware could be introduced to threaten the tooling, to create parts that are subtly defective, and/or to modify V&V processes to prevent detection of intentional damage. However, this risk is another new business opportunity: Establishment of companies and a workforce with expertise to maintain the security of the A&D manufacturing life cycle. Realization of an applicable cybersecurity industry in Connecticut will depend on access to one more workforce sectors that are trained to support this specialty.
- **A wider variety of system work will be necessary for a given company to achieve high gross revenue.** Companies will need to pursue a large number of low volume projects to maintain a given revenue target. Marketing of services and contracting processes will have to be simplified to keep applicable overhead costs down, with necessary innovations being within the domain of corporate responsibilities. However, the state could provide help by

hosting symposiums where A&D suppliers could be briefed regarding current and projected needs of a broad spectrum of potential customers.

Recommendation: Adopt high mix, low volume

- Reduce non-recurring manufacturing costs
- Limit dependence of unit manufacturing costs on production volume
- Widen the variety of system work

6.4.2. DPA Title III

DPA Title III resources can be applied to make an inefficient process affordable and timely by sponsoring production of parts that are deemed critical to national defense and that are otherwise at risk of diminishing domestic supplier availability. These resources can mitigate production shortfalls affecting new systems, and/or maintain production capability needed to sustain legacy national defense systems. While Title III resources address national security needs, they also contribute to creating jobs and economic growth at the state level. Challenges currently being faced by the Connecticut A&D industry that will impact its health in ways that will be consequential to national security on the third horizon should be factored into on-going proposals for Title III resources.

Recommendation: The state government should help the in-state A&D industry to coordinate Title III proposal planning, including identifying and highlighting Title III resource opportunities not already being actively pursued by the in-state industry.

6.4.3. Early Exposure to Manufacturing

To assure that the public educational system can produce a sustained flow of well-prepared workforce candidates, there must be exposure of students to career track opportunities from an early age (no later than middle school). This is when students begin to form their career interests, and when there is still opportunity to influence their ensuing, individual educational focus (e.g., impacting math, science, and software design/coding training they pursue in high school). Public school curriculum should be updated to include introduction to students of what will be necessary to prepare for advanced technology career opportunities. Some of the particulars regarding A&D manufacturing skill needs could be presented in a stimulating manner through means such as technology-based competitions that would include fabrication of parts needed to participate.

Recommendation: Update the public school curriculum to include early exposure to manufacturing career paths and how they are part of high-profile products or systems. Teaching using this curriculum should begin no later than middle school.

6.4.4. High Mix, Low Volume COE

High mix, low volume manufacturing will be a primary feature of A&D manufacturing on the third horizon. Creation of a COE to prepare for that eventuality would help the A&D industry in Connecticut to thrive under evolved market conditions.

CCAT provides one model for part of what a high mix, low volume COE would need to do, based on CCAT's Advanced Manufacturing Center (AMC) as well as its parallel workforce development initiatives. The mission of the AMC includes showcasing, demonstrating, and evaluating leading edge manufacturing as well as supporting metrology equipment.

Recommendation: Create a consortium or COE focused on high mix, low volume production.

- Develop and deploy advanced manufacturing technologies over the long term
- Strongly encourage active participation in some of these institutes by Connecticut A&D industry

Built on the CCAT model, such a center should include the following work scope:

- Evaluating, showcasing, and demonstrating design and manufacturing capabilities aimed at greatly reducing non-recurring costs incurred in the A&D manufacturing industry. This should include MBE tools, Model-Based System Engineering (MBSE) tools, and advanced additive manufacturing systems that can be applied to a wide variety of customers and customer needs with minimal modification. There are an increasing number of commercial players developing these capabilities for offer. The COE could do unbiased comparison of the ease of use, range of applicability, and labor-reduction potential of the applicable, state-of-the art products that enter the market, along with developing and applying metrics for their cost effectiveness based on initial procurement cost and on-going usage training required to apply the products. Development and ongoing offering of training programs for use of the capabilities could also be part of the center's mission, enabling training to be more generic than offered by product developers, without associated biases.
- Addressing implications of near fully-digital manufacturing. This should include: Software development; cybersecurity challenges and mitigations; various new workforce skill needs (including consideration of new categories of associated career path/skill choices); and new

supporting industry segments that will arise (e.g., related to creating and supporting V&V of the newly applied classes of software, and providing cybersecurity expertise).

- Facilitating industry networking with an increasingly diverse set of prospective customers. A&D industry companies will need help making contact with a wider range of prospective customers to maintain a suitable overall work level. This could be accomplished by hosting networking symposiums at various locations around the state with proximity to A&D industry suppliers.

6.4.5. Manufacturing USA Institutes

As discussed in **Section 2.1.1 The Defense Innovation Strategy**, there are now 14 capability-area-specific Manufacturing USA institutes created since 2014 to bring together industrial, academic and federal government partners to promote sustainable, robust national manufacturing R&D infrastructure that serves DoD needs. The current fourteen institutes, their Headquarters, and summarized missions can be found in **Table C-1** in **APPENDIX C: Manufacturing USA Institutes.**

The focus of these institutes is to develop and deploy advanced manufacturing technologies over the long term. Many derived technologies will be essential to the success of manufacturers in the third horizon.

Recommendation: Strongly encourage and incentivize direct and active participation by Connecticut A&D industry in the Manufacturing USA institutes. Doing so could facilitate early adoption of the most consequential resulting manufacturing technologies, providing a competitive edge on the third horizon.

7. Closing Remarks

The A&D manufacturing sector is growing nationally and within Connecticut, providing substantial opportunities for innovation and capitalization. Ensuring the availability of a sufficient and capable workforce to fuel this growth will be the most significant challenge for Connecticut.

Strategically, the state needs to focus on the critical macro trends. To this end, Connecticut must increase the interest of its workforce in manufacturing, and anticipate technology trends like additive manufacturing, cybersecurity, automation and robotics, and digital integration (i.e., Industry 4.0). The state should also act proactively to help the industry comply with new and upcoming DoD requirements, and to pursue DPA Title III support opportunities.

This study aided Connecticut in two key ways: It provided immediate, hands-on help to suppliers, and made strategic recommendations against each of the three innovation planning horizons, enabling the state to assure a strong A&D manufacturing presence well into the future.

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APPENDIX A: Summary of Recommendations by Report Section

§	Recommendations
2.3 Areas of Excellence & Path to Alignment with DoD	☐ **Further invest in manufacturing awareness, innovation, and readiness; in particular, a greater preparedness for MRLs**. Specifically, MRL 6 should be a target for Technology Maturity & Risk Reduction (TMRR) programs and MRL 8 for Engineering & Manufacturing Development (EMD) programs ☐ **Grow awareness** of coming changes to expectations and standards. ☐ **Provide training in MRLs/Manufacturing Readiness Assessments (MRAs)**, offering vouchers to suppliers unable to afford training. ☐ **Encourage integration and application of MRLs/MRAs** within the critical institutions. ☐ **Encourage contribution to working groups** and organizations that define improvements in coordination with the government. ☐ **Incorporate cyber security** measures to assure that the manufacturing environment is secure from adverse or latent threats. These measures should be incorporated *now* as they will be expensive to address if left as future add-ons. Measures may include suppliers instituting counterfeit parts protection plans. ☐ **Track adoption of additive manufacturing** by out-of-state competitors. Encourage its adoption within the state. ☐ **Investigate applicability of flexible hybrid electronics** and leverage existing resources in the northeast.
3.4 Increasing Competitiveness	**Short-term** ☐ **Increase appeal and awareness:** Include exposure to the A&D manufacturing career path as part of public education. This should begin no later than middle school, providing insight for students into skills they must develop to enable that career path. ☐ **Continually improve programs at community colleges** that prepare students for A&D jobs, aiming to expand training slots. The programs should have durations of less than a year. ☐ **Educate a cyber workforce:** Add manufacturing cybersecurity and cyber resilience training as additional curriculum content in A&D manufacturing vocational training. ☐ **Train for DoD security clearances:** Include preparation as part of vocational training. ☐ **Certify retiree educators:** Simplify educator certification for A&D vocational training. ☐ **Replace expiring federal grants:** Replace grants for A&D workforce development and manufacturing technology demonstration. A public-private partnership that would share cost burden between industry stakeholders and the state government is a primary resource option. ☐ **Showcase technology to suppliers:** Arrange local manufacturing technology fairs for A&D suppliers at key locations across the state to provide information about new manufacturing, metrology, and automation capabilities with potential to improve competitive posture. These fairs should provide interactive demonstration of capabilities being promoted. ☐ **Provide export control training:** Offer export control process training classes for A&D industry supplier staff at locations across the state. **Long-term** ☐ **Keep vocational education current:** Create a working group focused on keeping A&D manufacturing vocational education curriculum fully up to date with the industry state-of-the-art and trends in manufacturing technology, digital integration, and cyber security. ☐ **Help suppliers get Title III grants:** Partner with the A&D supplier base to seek Title III grants to facilitate survival of applicable, unique Connecticut manufacturing capabilities, to offset loss of critical manufacturing capabilities elsewhere within the US. ☐ **Address manufacturing tools:** Place a state focus of attention onto manufacture of *the tools* of advanced manufacturing. ☐ **Incentivize new graduate-level research** with in-state higher education institutions to develop programs that address future needs of the A&D industry and national security. ☐ **Attract privately-funded research centers:** Seek private, possibly philanthropic funding to create clusters of technology development excellence within the state. For example, a cluster of organizations pursuing green energy technology could include the use of electrified aviation propulsion to reduce aviation's greenhouse gas emissions. Game-changing technology clusters often co-locate with major research institutes in the field. Many such institutes get established by philanthropic gifts aimed at high-profile advances with beneficial impacts on society.

4.1.3 Technology Innovation	**Tactical Awareness** ☐ **Establish State Manufacturing Health Metrics (SMHMs).** These metrics should *assess the alignment of the Connecticut industrial base, educational institutions, infrastructure, and policy with the current (A&D) customers*. The SMHMs should factor in advanced manufacturing capability as defined by the Manufacturing Innovation Institutes, as these represent features of the future competitive landscape. ☐ **Host an annual "State of the Industry" forum** to showcase what has been going on and what is coming (e.g., latest manufacturing trends, Title III funding opportunities, etc.). It would provide the opportunity for Connecticut suppliers to participate in a vendor fair to showcase their capabilities for prime contractors, and could also be used as a recruiting event for local students. State suppliers should be invited to participate. Such a symposium would provide Connecticut with takeaways/actions to support policy planning. ☐ **Participate in DoD Manufacturing Innovation Programs and working groups.** This participation will facilitate awareness of future DoD needs. Grant eligibility rules result in collaborations between primes/OEMs, educational institutions, and small businesses providing opportunity for all to foresee needed direction for their efforts. ☐ **Host an annual "State of the Industry" forum** to showcase what has been going on and what is coming (e.g., latest manufacturing trends, Title III funding opportunities, etc.). It would provide the opportunity for Connecticut suppliers to participate in a vendor fair to showcase their capabilities for prime contractors, and could also be used as a recruiting event for local students. State suppliers should be invited to participate. Such a symposium would provide Connecticut with takeaways/actions to support policy planning. **Strategic Awareness** ☐ **Participate in DoD Manufacturing Innovation Programs and working groups.** This participation will facilitate awareness of future DoD needs. Grant eligibility rules result in collaborations between primes/OEMs, educational institutions, and small businesses providing opportunity for all to foresee needed direction for their efforts.
4.2.3 Advanced Manufacturing	☐ **Encourage companies to begin adapting** to advanced manufacturing trends. ☐ **Develop a flexible hybrid electronics industry**. ☐ **Invest in larger print space additive manufacturing.** This investment will require investigation into how fabricated part certification can be done cost effectively and timely. ☐ **Facilitate training in cybersecurity and export control.** Smaller manufacturers would greatly benefit. ☐ **Assist companies with software-based infrastructure acquisitions.** Many members of the supply chain currently lack software-based infrastructure to support digital thread processes. ☐ **Support ongoing development of a composites manufacturing COE.**
4.3.2 Workforce	☐ **Evaluate options for increasing accessibility to public transportation** between residential areas and manufacturing facilities (e.g., add a bus stop, subsidized transportation, rideshare incentives, etc.). ☐ **Establish programs teaching elementary and middle-school students** about manufacturing principles.. ☐ **Expand on successful programs such as "Dream it. Do it."**, building them into early education curricula, if possible. ☐ **Build awareness of the benefits of jobs in high-tech manufacturing** in parallel with the college application process in high-school counseling programs. ☐ **Further increase technical high school capacity** by simplifying the instructor certification process and providing incentives to skilled retirement or pre-retirement workforce members to explore a second career in manufacturing / trades education. ☐ **Pursue other long-term, sustained funding sources** such as DPA Title III funding or public-private partnerships. ☐ **Continue support to CCAT and related programs** and ensure their curriculum is evolving with the skillset required to support advanced manufacturing. ☐ **Encourage companies to begin adapting** to advanced manufacturing. ☐ **Start teaching students about manufacturing no later than middle school.** By educating children from a young age, more will consider manufacturing as a career choice. ☐ **Invest in educational training and infrastructure**. This should include resources to address emerging advanced manufacturing technologies. ☐ **Strengthen apprenticeship programs**. Include training within a workplace environment. Emphasize machinist apprenticeships given many associated job opportunities.
6.2.2 Sustaining	☐ **Add public transportation options** between proximal[43] workforce population (residential) centers and manufacturing facilities for primes and key suppliers. ☐ **Encourage primes/suppliers to transition qualified retiring workforce members into teaching.** ☐ **Expedite accreditation and training** for candidates with manufacturing experience who demonstrate aptitude for teaching. ☐ **Sponsor a public awareness campaign** targeted at children about the benefits of pursuing a career in manufacturing. ☐ **The MIF should provide support for advanced technology training.** ☐ **Encourage primes/suppliers to offer manufacturing training scholarships.**

[43] *Proximal*: a region encompassing sufficient workforce to satisfy the need (likely within a 30 min travel time from a given manufacturing facility).

6.3 Competitiveness through Disruptive	☐ **Create and deploy Connecticut Certified Supplier Program** ☐ **Tap synergy between Primes and urban development and infrastructure** - Encourage footprint/presence of prime contractors by tapping into synergy with urban development projects and infrastructure strategic plans ☐ **Address security awareness training** - Ensure that primes and suppliers provide training to their employees on critical security awareness, with an emphasis on cyber security. - Encourage educational institutions to provide training early and often ☐ **Address clearance awareness training** - Incorporate clearance training programs into high school and college curricula to educate students about the vetting process.
6.4 Transforming and Leading the A&D Industry	☐ **Adopt high mix, low volume** – Reduce non-recurring manufacturing costs – Limit dependence of unit manufacturing costs on production volume – Widen the variety of system work ☐ **Take advantage of Title III** – The state government should help the in-state A&D industry to coordinate Title III proposal planning, including identifying and highlighting Title III resource opportunities not already being actively pursued by the in-state industry ☐ **Promote Early Exposure to Manufacturing** – Update the public school curriculum to include early exposure to manufacturing career paths and how they are part of high-profile products or systems. Teaching using this curriculum should begin no later than middle school. ☐ **Create a consortium or COE focused on high mix, low volume.** – Develop and deploy advanced manufacturing technologies over the long term – Strongly encourage active participation in some of these institutes by Connecticut A&D industry ☐ **Manufacturing USA Institutes** --Strongly encourage and incentivize direct and active participation by Connecticut A&D industry in the Manufacturing USA institutes. Doing so could facilitate early adoption of the most consequential resulting manufacturing technologies, providing a competitive edge on the third horizon.

APPENDIX B: Nine Recurring Topics

USG Procurement Budget	• ↔or ↑ in most sectors, esp. radar, fixed wing (FW) aircraft, and ships • USN & USAF projected to be allocated most funding during 2017-2021
Government RDT&E Budget	• ↓ or ↔ in all sectors except FW aircraft and UAVs • USAF is expected to receive the most funding in 2017
Aging Workforce	• Aerospace innovation initiative will provide opportunity to build aircraft prototypes to provide hands on experience for new engineers • DOD ManTech program is addressing deficiencies in sectors for: Navy, Air Force, DLA, OSD
Digital Thread	Electronic process from concept through manufacture using MBE, automated tolerancing, integrated/automated machining (either 3D or standard) using algorithms to optimize material flow/scrap and software to coordinate vendors, customers, etc.
Additive Manufacturing (AM)	• Emphasis on "lightweighting" (e.g., thin walled structures) • Topological optimization to reduce material • Design rules for structural reinforcements to prevent warp during sintering • Integrating AM equipment with standard manufacturing for fully integrated 3D "finished" systems controllable through smartphones/tablets • Creating molds and pre-pregs to facilitate and reduce cost in manufacturing • Big area AM (BAAM): making very large parts to save on material scrap (cost)
Flexible Hybrid Electronics	• Hybrid electronics incorporates CMOS based components with printed designs. • Flexible "Conformable" electronics exploit the ability to conform to organic shapes, and when combined with rapid advancements in data analytics and artificial intelligence, enable real time decision making ability (virtual reality).
Cybersecurity	• Supply chain security (and domestic production or lack thereof)! • Intercompany electronic collaboration – data flow
Threat of Chinese Manufacturing Dominance	• Current major supplier in PWBs and plans to dominate Semiconductor industry • DoD does not represent major customer so cannot influence market shift • Security for weapons systems • Title III projects focusing on electronic security

APPENDIX C: Manufacturing USA Institutes

Table C-1: Current Manufacturing USA Institutes (Institutes, n.d.)

Institute Name	Headquarters	Summarized Missions
Advanced Functional Fabrics of America	Cambridge, MA	Aiming to enable transformation of traditional fibers, yarns, and fabrics into highly sophisticated, integrated and networked devices and systems.
American Institute for Manufacturing Integrated Photonics	Rochester, NY	Working to accelerate transition of integrated photonic solutions from innovation to manufacturing-ready deployment in systems.
America Makes	Youngstown, Ohio	A national accelerator for innovation in additive manufacturing and 3D printing.
Advanced Robotics Manufacturing	Pittsburgh, PA	Aiming to create and then deploy robotic technology to realize the promises of a robust manufacturing innovation.
Advanced Regenerative Manufacturing Institute	Manchester, NH	Integrating innovative cell and tissue cultures with advances in biofabrication, automation, robotics, and analytical technologies.
Clean Energy Smart Manufacturing Innovation Institute	Los Angeles, CA	Aiming to spur advances in smart sensors and digital process controls that can radically improve the efficiency of U.S. advanced manufacturing.
The Digital Manufacturing and Design Innovation Institute	Chicago, IL	Seeking to deploy digital manufacturing and design technologies, to make factories more efficient and cost-competitive.
The Institute for Advanced Composites Manufacturing Innovation	Knoxville, TN	Seeking to accelerate development and adoption of manufacturing technologies for manufacturing of advanced polymer composites.
Lightweight Innovations for Tomorrow	Detroit, MI	Working to develop and deploy advanced lightweight materials manufacturing technologies.
NextFlex	San Jose, CA	Taking steps to further U.S. development and adoption of flexible hybrid electronics.
The National Institute for Innovation in Manufacturing Biopharmaceuticals	Newark, DE	Working to enable more efficient and flexible manufacturing capabilities for existing and emerging biopharmaceutical products.
Power America	Raleigh, NC	Accelerating the adoption of advanced semiconductor components made with silicon carbide and gallium nitride.
Rapid Advancement in Process Intensification Deployment Institute	New York, NY	Focusing on new technologies that maximize processes at the molecular level to save energy with every chemical reaction.
Reduced Embodied-Energy and Decreasing Energy	Rochester, NY	Focusing on innovations that could dramatically reduce the energy required to manufacture key materials and improve overall manufacturing energy efficiency.

APPENDIX D: Acronyms

3C	Correct, Complete and Concise
3D	Three-dimensional
A&D	Aerospace & Defense
AAA	Attribute Agreement Analysis
ACCE	Activated Carbon Capacity Expansion (CT Title III project)
ADBPP	Advanced Drop-In Biofuels Production (CT Title III project)
AFI	Air Force Instruction
AFIT	Air Force Institute of Technology
AIA	Aerospace Industries Association
AM	Additive Manufacturing
AMC	Advanced Manufacturing Center
AoA	Analysis of Alternatives
BAAM	Big Area Additive Manufacturing
BOM	Bill of Materials
BSPK	Bio-Synthetic Paraffinic Kerosene Production (CT Title III project)
CAD	Computer-aided Drafting / Computer Augmented Design
CAMI	Connecticut Advanced Manufacturing Initiative
CBIA	Connecticut Business & Industry Association
CCAT	Connecticut Center for Advanced Technology Inc.
CMM	Coordinate Measurement Machines
CMOS	Complementary Metal-Oxide-Semiconductor
CMP	Critical Manufacturing Process
CNC	Computer Numerical Control
COE	Center of Excellence
ConOps	Concept of Operations

COMSEC	Communications Security
CRI	Cost Reduction Initiatives
CT	Connecticut
CTDIDI	Connecticut Dream It. Do It.
CTE	Critical Technology Elements
DAU	Defense Acquisition University
DECD	Department of Economic & Community Development
DFMA	Design for Manufacture and Assembly
DLA	Defense Logistics Agency
DMSMS	Diminishing Manufacturing Sources and/or Material Shortages
DoD	Department of Defense
DPA	Defense Production Act
EAR	Export Administration Regulations
EMD	Engineering & Manufacturing Development
FAI	First Article Inspection
FW	Fixed Wing
FRP	Full-rate Production
IP	Intellectual Property
IT	Information Technology
GaN	Gallium Nitride
GAO	Government Accountability Office
GDP	Gross Domestic Product
GE	General Electric
GFY	Government Fiscal Year
HQ	Headquarters
HR	Human Resources

IACFP	Integrated Advanced Composite Fiber Placement (CT Title III project)
IoT	Internet of Things
ITAR	International Traffic in Arms Regulations
ITC	Innovation Technology Center
ITSEC	Information Technology Security Evaluation Criteria
KC	Key Characteristic
LiIon	Lithium Ion
LRIP	Low-Rate Initial Production
LTA	Long-term Agreements
MA	Massachusetts
ManTech	Manufacturing Technology
MassTech	Massachusetts Technology Collaborative
MBE	Model-Based Engineering
MBSE	Model-Based Systems Engineering
MDA	Missile Defense Agency
MIBP	Manufacturing and Industrial Base Policy
MIF	Manufacturing Innovation Fund
MII	Manufacturing Innovation Institute
MMIC	Monolithic Microwave Integrated Circuit
MMP	Manufacturing Maturity Plan
MRA	Manufacturing Readiness Assessments
MRL	Manufacturing Readiness Level
MRP	Manufacturing Resource Planning
MRR	Manufacturing Readiness Review
MSA	Measurement System Analysis
NDA	Non-Disclosure Agreement

NGRS	Next-Generation Reaction Wheel
NGSTS	Next-Generation Star Trackers System
NNMI	National Network of Manufacturing Innovation
OEA	Office of Economic Adjustment
OEM	Original Equipment Manufacturer
OPSEC	Operations Security
OSD	Office of the Secretary of Defense
OTA	Other Transaction Authority
PDR	Preliminary Design Review
POC	Proof of Concept
POD	Proof of Design
POM	Proof of Manufacture
PoP	Period of Performance
PPP	Public Private Partnerships
PRR	Production Readiness Review
PWB	Printed Wiring Board
QMS	Quality Management System
RADE	Regional Aerospace & Defense Exchange
R&D	Research and Development
R&E	Research and Engineering
R&R	Repair and Return
RCCA	Root Cause and Correct Action
RDT&E	Research Development Test & Evaluation
RFID	Radio Frequency Identification
RFP	Request for Proposal
ROIC	Read Out Integrated Circuit

S&T	Science and Technology
SBIR	Small Business Innovation Research
SME	Small to Medium Enterprises
SMHM	State Manufacturing Health Metric
SOW	Statement of Work
SPC	Statistical Process Control
SSA	Specialized Service Agreement
STE	Special Test Equipment
STEM	Science, Technology, Engineering and Mathematics
STEP	State Trade Export Program
TAM	Total Addressable Market
TD	Technology Development
TMRR	Technology Maturity Risk Reduction
TRL	Technology Readiness Level
UAV	Unmanned Aerial Vehicle
UConn	University of Connecticut
US	United States
USAF	United States Air Force
USG	United States Government
USN	United States Navy
V&V	Verification and Validation
VC	Venture Capitalist

APPENDIX E: Glossary of Terms

Acquisition Contract: an agreement to manufacture a product for the DoD

Acquisition Lifecycle: the process flow to make the necessary quantity of a product

Additive Manufacturing: a process where material is added in layers (ex 3D printing)

Advanced Manufacturing: production of more complex products not considered commodities

CNC Machining: machine tooling via imbedded computer programs

Correct, Complete, Concise: qualities to satisfy customer needs in product lifecycle

Cybersecurity: the protection of digital information and systems

Digital Thread: digital organization of files and process of manufacturing process

Export Control: security of information leaving the company to another source

Flexible Hybrid Electronics: printed circuit electronics on flexible materials

High Mix/Low Volume: producing many different products at low quantities

Lean Manufacturing: systemic method to mitigate waste in a manufacturing setting

Manufacturing Assurance: producing the expected product quantity and quality

Manufacturing Readiness: preparedness level manufacturing process for full scale production

Manufacturing Value Chain: a process line in which something is manufactured

Original Equipment Manufacturer: manufacturer of whole products sold to an end user

Porter's Five Forces: a business model to analyze competitive forces

Prime Contractor: typically an OEM who is designated by the DoD as the single point of purchase for a product or solution

Process Capability and Control: the ability to which a product can be manufactured consistently and accurately

Subcontractors: manufacturers hired by primes to delegate manufacturing

Sub-tiers: the levels of manufacturers hired below the prime and subcontractors

Supply Chain: sequence of connected companies making parts for the same product

Three Horizons: a model for implementing innovation through sustainment, disruption, and transformation

Traditional Manufacturing: companies that produce commodities

[i] AIA, *The Strength to Lift America*, 2016, p.14
[ii] *Report to Congress: Fiscal Year 2016 Annual Industrial Capabilities*, p. 11
[iii] Secretary of Defense Memo, *The Defense Innovation Initiative*
[iv] Welby, *Preserving Technological Superiority*, slide 5.
[v] Rose, *Sprinting to Value in Industry 4.0*, p. 4
[vi] CBIA, *2017 Survey of Connecticut Manufacturing Needs*, p.4
[vii] AIA, *The Strength to Lift America*, 2016, p.2
[viii] AIA, *2017 Facts and Figures: U.S. Aerospace and Defense*, p.2
[ix] AIA, *The Strength to Lift America*, 2016, p.1-2
[x] AIA, *The Strength to Lift America*, 2016, p.9-10,12
[xi] AIA, *The Strength to Lift America*, 2016, p.9-10
[xii] AIA, *The Strength to Lift America*, 2016, p.12
[xiii] AIA, *The Strength to Lift America*, 2016. p.16
[xiv] Ibid.
[xv] Bowen, *Why Manufacturing is Growing - Not Declining - in Georgia*
[xvi] Crumbo, *Aerospace boom pays off for S.C. manufacturer*
[xvii] Ibid.
[xviii] MassTech Collaborative, *Annual Index of the Massachusetts Innovation Economy*,p.5
[xix] Ibid.
[xx] Ibid.
[xxi] CBIA, *2017 Survey of Connecticut Manufacturing Workforce Needs*, p. 1
[xxii] Ibid.
[xxiii] Conexus Indiana, *Manufacturing & Logistics Report Card for the United States*, 2016-2017.
[xxiv] Ibid.
[xxv] MassTech Collaborative, *Annual Index of the Massachusetts Innovation Economy*,p.54
[xxvi] MassTech Collaborative, *Annual Index of the Massachusetts Innovation Economy*,p.38
[xxvii] MassTech Collaborative, *Annual Index of the Massachusetts Innovation Economy*,p.57
[xxviii] MassTech Collaborative, *Annual Index of the Massachusetts Innovation Economy*,p.42
[xxix] Ibid.
[xxx] Compiled from: MassTech Collaborative, *Annual Index of the Massachusetts Innovation Economy*, pp. 16-18
[xxxi] CBIA, *2017 Survey of Connecticut Manufacturing Workforce Needs*, p. 8-9
[xxxii] CBIA, *2017 Survey of Connecticut Manufacturing Workforce Needs*, p. 3
[xxxiii] CBIA, *2017 Survey of Connecticut Manufacturing Workforce Needs*, p. 2
[xxxiv] CBIA, *2017 Survey of Connecticut Manufacturing Workforce Needs*, p. 3
[xxxv] Ibid.
[xxxvi] CBIA, *2017 Survey of Connecticut Manufacturing Workforce Needs*, p. 6
[xxxvii] CBIA, *2017 Survey of Connecticut Manufacturing Workforce Needs*, p. 7
[xxxviii] Ibid.
[xxxix] Ibid.
[xl] CBIA, *2017 Survey of Connecticut Manufacturing Workforce Needs*, p. 7
[xli] Ibid.
[xlii] CT DECD, *Manufacturing Innovation Fund 2016 Annual Report, p.4, 13*
[xliii] CT DECD, *Manufacturing Innovation Fund 2016 Annual Report, p.4*

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	05/15/2017 04:49:35 PM
To:	Molina-Rios, Carmen
Cc:	Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	FW: 5-12-17 RADE Task 5 Weekly Status Report
Attachments:	Lessons Learned-Outcomes-Impacts 5-12-17.xlsx Supplier Status Draper 5-12-17.xlsx Supplier Status CCAT 5-12-17.xlsx

Carmen,

Please disregard the prior e-mail. I neglected to attach the status files for Draper and CCAT in the prior note.

Thanks,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Devins, Kenneth
Sent: Monday, May 15, 2017 3:17 PM
To: 'Molina-Rios, Carmen'
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc
Subject: 5-12-17 RADE Task 5 Weekly Status Report

Carmen,

1) Belcan has complied a summary of lessons learned and examples of outcomes and impacts from Task 5 activities in developing a business model for future government and commercial partnerships (See attachment).

2) Summaries of Draper and CCAT RADE Task 5 activity for the week ending 5/12/17 are listed in the attached files.

3) Since November of 2016 when the ITC was officially started, and the GOM ATOS was finally ordered, about 2,400 hours have been spent by AMC personnel in the ITC.

a) CCAT staff have spent ~1,600 hours demonstrating the GOM ATOS scanner to CT manufacturers.
Activities include:
Informal demonstrations to visitors touring AMC
Formal demonstrations to 14 companies
Currently we have:
5 companies investigating the technology
1 active project
6 complete projects
2 companies not interested in the technology

b) CCAT staff spent ~800 hours on learning how to operate GOM ATOS scanner?
Activities include:
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

Regards,

Ken

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Note: Withheld pursuant to CGS § 1-210(b)(5) and CGS § 32-244(a)(13)

Recommendations for Governmnent / Commercial Technology parnerships

Draper

Lessons Learned

a) Provide budget flexibility to Draper based on their assessment of potential benefits, do not specify budget limits for each supplier or project.

b) Initial outreach to suppliers should be from DECD/Belcan, not Draper, to allay fears of a hidden agenda from Draper.

Outcomes & Impact

a)Suppliers adopt new technologies to enhance their competitiveness

Example: Ct supplier to the F135 adopted Structured Light Scanning and 3D printing [redacted]

CCAT

Lessons Learned

a) Streamline equipment purchase process to improve facility planning

b) Develop long term sustainability plan

c) Define equipment ownership transition process

d) Establish technology retirement guidelines for facility planning purposes

Outcomes & Impact

a) Suppliers have the ability to test specific technologies available at the ITC with minimal cost and no risk

Example: [redacted]

Belcan

Lessons Learned

a) Assign a Technology Manager at initiation of the project to participate is setting objectives

b) Define contract objectives with input from all participants

c) Clarify limitations on sharing proprietary material between the Technology Manager, Contracters and Government Agencies

Outcomes & Impact

a) Coordinate efforts with Draper, CCAT, DECD ands suppliers, promote synergy and avoid redundant efforts

Example: Combined the supplier contacts and lists from Draper, CCAT and Belcan and identified additional suppliers for participation

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]	ITC & Supplier Complete	CCAT	[redacted]
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)		Active	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)		Active	CCAT	
Phoenix Manufacturing		Structured Light Scanning (SLS)		Active	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)		Investigating	CCAT	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)		Investigating	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)		Investigating	CCAT	
Alpha Q		Structured Light Scanning (SLS)		Investigating	CCAT	
Polamer		Structured Light Scanning (SLS)		Investigating	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)		Investigating	CCAT	
Vista International Soundstik		Structured Light Scanning (SLS)		Investigating	CCAT	
Aerospace Alloys		Structured Light Scanning (SLS)		Not interested	CCAT	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)		Not interested	CCAT	
Barnes Aerospace		Structured Light Scanning (SLS)		Not interested	CCAT	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Deburring House Inc.	Stephen Cyr - Quality Mgr	Equipment Recommendation and Engineering Services	[redacted]	Completed	Draper	[redacted]
GKN Aerospace	Martin Thorden - President,	Process Improvement, Equipment Recommendation and Engineering Services	[redacted]	Implemented	Draper	[redacted]
Habco Industries	Brian Montanari President & CEO	Process Improvement and Equipment Recommendation	[redacted]	Completed	Draper	[redacted]
Jonal Laboratories, Inc.	Marc Nemeth - President	Process Improvement and Equipment Recommendation	[redacted]	Implemented	Draper	[redacted]
Admill Machine	Al Parlow	Process Improvement	[redacted]	~~Investigating~~ Inactive	Draper	[redacted]
Avalon Advanced Technologies & Repair Inc.	Vino Franklin - President, Jeffrey Kelly - Quality Mgr	Process Improvement	[redacted]	~~Investigating~~ Inactive	Draper	[redacted]

CAM Group LLC		Equipment Recommendation	[redacted]	~~Investigating~~ Inactive	Draper	[redacted]
Flanagan Industries (EDAC)	DECD to define	Equipment Recommendation		~~Investigating~~ Inactive	Draper	
Polar Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mgr			Withdrawn	Draper	

From: Molina-Rios, Carmen
Sent time: 04/12/2016 03:25:33 PM
To: Wayne Sumple <wsumple@ccat.us>
Subject: FW: [External] DECD Equipment Purchase - Task 5
Attachments: Capture3D Quote for ATOS 16M with PlusBox and ScanBox.pdf GOM Atos Triple Scan Recommendation.pptx

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Hi Wayne,

Thanks for reaching out on the equipment purchase. This is the full recommendation under consideration. Please let me know if there would be any issues with this equipment at CCAT to support the RADE Task 5 deliverables.

Carmen

Capture 3D, Inc.
Headquarters
3505 Cadillac Avenue, F1
Costa Mesa, CA 92626 USA
(714) 546-7278

Quotation

Date	Quote #
4/7/2016	14946

Prepared by:
Capture 3D, Incorporated
Phone: (714) 546-7278
Fax: (714) 546-7279
accounting@capture3d.com

Prepared For:

Draper Laboratory
Bryan Wittstein
555 Technology Square
Cambridge, MA 02139

Terms	Valid Until	Shipping
30% down bal due on receipt	5/7/2016	8-10 Weeks

Item	Description	Qty.	PRICE	Total
ATOS 16M Plus ...	ATOS Triple Scan 16M with Integrated 29M photogrammetry unit on a 400 frame with one measuring volume: 320mm x 240mm x 240mm packed in a stable travel case for optimal protection and easy traveling. ATOS Triple Scan a structured blue-light 3D Scanner that operates as 3 sensors- in- 1 featuring two 16 mega pixel measuring cameras providing 16-million PPS (points per scan) packed in a durable travel case. Each high quality optical camera works independently capturing accurate 3D scans from left, right, and both cameras with high-resolution feature detail. Each scan is automatically aligned within the software. The ATOS Professional Live XL Software offers complete rapid 3D scanning, mesh editing, and parametric inspection. Other features include: Industry specific inspection features, creating measurement plans, templates, teaching by doing, trend analysis, GD &T, online tracking, reverse projection, photogrammetry functionality, and more. Integrated third camera for photgrammetry includes lens, carbon fiber scale bar set with clamps and additional XL photogrammetry software. Packed in a stable travel case for optimal protection and easy traveling. Complete Industrial Dell 7810.L Rackmount PC with 24'' TFT monitor mounted in a 19” Rack with wheels for easy transportation and protection: 2x Intel 3.1GHz DecaCore, 64 GB RAM, Nvidia Quadro K4200, 512GB SSD + 2 x 2TB HDD (Raid), keyboard, mouse, Windows 7 (64 bit) operating system, and external USB system backup hard drive ASABA enhanced stand system, 2.1, 2.5 or 3.0 meter height, 1M or 1.7M horizontal arm, articulating head and additional counterbalance weight. Accessories: set of tools, thermometer, one (1) touch probe, uncoded targets, training manuals and ATOS acceptance test report for each measuring volume. One year all inclusive hardware and software support Three days of on-site training by a Capture 3D Engineer.	1	259,360.00	259,360.00
TS-16-170mm	170mm X 130mm X 130mm Measuring Volume with calibration artifact for an ATOS 16M Triple Scan	1	6,300.00	6,300.00
TS-16-560mm	535mm X 400mm X 320mm Measuring Volume with calibration artifact for an ATOS 16M Triple Scan	1	6,300.00	6,300.00
			TOTAL	

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Terms	Valid Until	Shipping
30% down bal due on receipt	5/7/2016	8-10 Weeks

Item	Description	Qty.	PRICE	Total
ScanBox 5120	ScanBox 5120 - Robot Module with robot and controller, ScanBox Master Controller, customization of robot cable guiding and connectors for ATOS ScanBox, sensor adapter and carrier for robot module—For use with ATOS II-TS, ATOS III-TS or ATOS III-TS+ only. - Rotation Table Module with additional driver and motor for 7th axis, rotation table, D800 rotation table plate and carrier for rotation table module. -Robot on 400mm height extension - Machine housing - Software for robot safety and communication. - Documentation with CE Certification and declaration of conformity, documentation of the mechanical and electrical components, operating manual and definition of the Virtual Measuring Room (VMR) -VMR Software - 12 months of warranty - Assembly and initial operation of ATOS ScanBox: 4 man days. - VMR offline and online training: 2 man days. Dimensions: 3300mm width x 3300mm depth x 2700mm height, for components with max diameter of 2000mm and max height of 2000mm.	1	171,250.00	171,250.00
ATOS II/III-TS C...	ATOS II/III - TS 10M sensor cable. sensor head to PC.	1	1,625.00	1,625.00
			TOTAL	**$444,835.00**

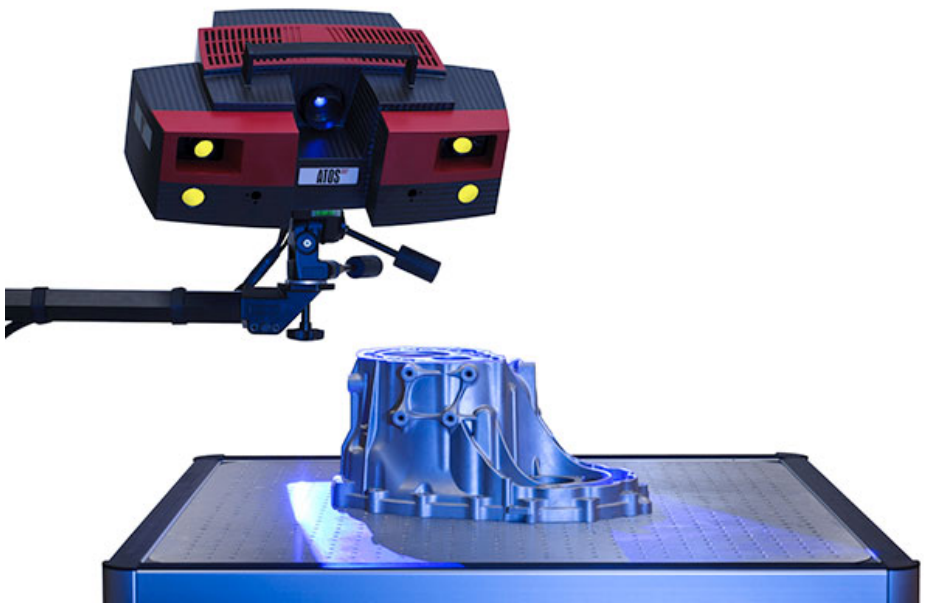
DRAPER

Recommendation for Blue Light 3D Mapping System

GOM Atos Triple Scan 16M with PlusBox



Field of View	(130mm x 130mm) - (400mm x 320mm)
Depth of Field	170mm - 535mm
Point Cloud Spacing	.03mm - .16mm
Point Cloud Accuracy	.0127 mm - .02 mm
Convert to STL	yes
Exposure Time	.5 s - 6 s
Mounting	Industrial Robot (Fanuc M20iA)
Weight	12.7 kg
Software	ATOS Professional
Operating Environment	5 - 40 °C
D&B Supplier Eval. Risk Rating	2
Price	$273,585.00
Comments	Optional GOM Touch Probe for individual point measurements.



- High accuracy system with the option of using GOM Touch probe for individual point measurement
  - This can be used to measure inclusions that can't be mapped with structured light
- Additional PlusBox allows for automated qualification of reference frames
- Consistent with existing qualified measurement systems for key aerospace manufacturers

GOM ScanBox 5120

Space requirements (W x L x H)	3.30 m x 3.30 m x 2.70 m
Max. part size	Up to 2 m
Max. part weight	Up to 500 kg
Automated axes	7
Robot controller	Integrated
Master controller	Integrated
Viewing windows	8
Entry	sliding door with safety locks
Opening width	1.40 m
Floor mounting or fixing	Not Required
Loading	Manual, transport cart, pallet truck
Price	$171,250.00
Total price: (includes ATOS Triple Scan 16M, automated system and all accessories)	$444,835.00



- Fully automated “Plug & Play” inspection center designed for the ATOS Blue Light system
- Utilizes FANUC M-20iA industrial robot with 7 axis of automated movement
- Capable of performing fully automated inspection on parts up to 2 meters in diameter and up to 500 kg

From:	Molina-Rios, Carmen
Sent time:	04/01/2016 12:06:41 PM
To:	Tong, Kun PW <Kun.Tong@pw.utc.com>
Cc:	DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>; Brindley, William J PW <William.Brindley@pw.utc.com>; Gutierrez, Beatriz; Fernandez, Barbara; Russo, Deborah
Subject:	FW: [External] DECD Equipment Purchase - Task 5
Attachments:	ATOS Automated Inspection Systems.pptx

Hi Kun,

Please see Draper's findings on the ATOS Triple Scan 16M and GOM ScanBox 5120. Draper is recommending the GOM Scanbox 5120. What are your thoughts on this and is it similar to what PW is using?

Thank you for your time on this. I appreciate your help.

Carmen

-----Original Message-----

From: Holmes, Steven M. [mailto:sholmes@draper.com]

Sent: Thursday, March 24, 2016 4:02 PM

To: Molina-Rios, Carmen; Wittstein, Bryan E.

Cc: Serna, Frank J.

Subject: RE: [External] DECD Equipment Purchase - Task 5

Carmen,

Bryan has investigated three automation systems which can be used in conjunction with the ATOS Triple Scan 16M. The attached slides summarize his findings. If we had to make a recommendation it would be the GOM ScanBox 5120; however it is somewhat more expensive than the other options. Commonality with P&W could influence our soft recommendation; however we do not know what P&W is using.

Let us know if you'd like any additional information.

Thanks

Steve

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Monday, March 21, 2016 8:57 AM

To: Wittstein, Bryan E. <bwittstein@draper.com>; Holmes, Steven M. <sholmes@draper.com>

Subject: FW: [External] DECD Equipment Purchase - Task 5

Bryan,

Do you have the spec and cost to the robotic automation system Kun is referring to? Can you please send it to me?

Thank you.

Carmen

Sent from my Windows Phone

From: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>

Sent: 3/21/2016 8:22 AM

To: Tong, Kun PW<mailto:Kun.Tong@pw.utc.com>

Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>

Subject: RE: [External] DECD Equipment Purchase - Task 5

Good morning Kun,

Thank you for confirming and your recommendation.

Regards,

Carmen

Sent from my Windows Phone

From: Tong, Kun PW<mailto:Kun.Tong@pw.utc.com>

Sent: 3/18/2016 6:10 PM

To: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>

Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>

Subject: Re: [External] DECD Equipment Purchase - Task 5

Carmen,

Yes, that is the sensor. I would recommend a robotic automation system with it if funding allows. Thanks

Kun

Sent from my iPhone

On Mar 18, 2016, at 3:24 PM, Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov<mailto:Carmen.MolinaRios@ct.gov>> wrote:

<image001.jpg>

Good Afternoon Everyone,

Please see attached the spec for the ATOS Triple Scan 16M. Please confirm for us that this is the system utilized by PW as the Blue Light production system that has been qualified.

Thank you again for your time and helping us understand they equipment/technology better.

Regards,

Carmen

_____

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Tuesday, March 15, 2016 4:41 PM

To: 'Brindley, William J PW' <William.Brindley@pw.utc.com<mailto:William.Brindley@pw.utc.com>>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov<mailto:Beatriz.Gutierrez@ct.gov>>; Wittstein, Bryan E. <bwittstein@draper.com<mailto:bwittstein@draper.com>>; Russo, Deborah <Deborah.Russo@ct.gov<mailto:Deborah.Russo@ct.gov>>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov<mailto:Mayra.S.Holbrook@ct.gov>>; Holmes, Steven M. <sholmes@draper.com<mailto:sholmes@draper.com>>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com<mailto:joseph.drescher@pw.utc.com>>; Tong, Kun PW <Kun.Tong@pw.utc.com<mailto:Kun.Tong@pw.utc.com>>; 'Don Balducci' <dbalducci@ccat.us<mailto:dbalducci@ccat.us>>

Cc: 'Tom Maloney' <tmaloney@ccat.us<mailto:tmaloney@ccat.us>>; Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>

Subject: DECD Equipment Purchase - Task 5

Good Afternoon Everyone,

Thank you again for your time this afternoon. It was extremely helpful to have everyones perspective. As we discussed, Draper Labs will provide DECD with the spec and cost for the GOM Atos Triple Scan equipment. Once we receive that I will be sure to send out an email to the group to confirm that we heard you right and we are all on the same page prior to DECD acquiring the equipment.

Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios

Dept. of Economic and Community Dev.

505 Hudson Street

Hartford, CT 06106

Tel: 860.270.8234

Fax: 860.707.1809

Email: Carmen.Molinarios@ct.gov<mailto:Carmen.Molinarios@ct.gov>

Please consider the environment before printing <image002.png> Follow DECD <image003.gif> <http://www.facebook.com/pages/DECD/188972734470153>

_____

Notice: This email and any attachments may contain proprietary (Draper non-public) and/or export-controlled information of Draper. If you are not the intended recipient of this email, please immediately notify the sender by replying to this email and immediately destroy all copies of this email.

_____

<GOM Atos Triple Scan Recommendation.pptx> _____

Notice: This email and any attachments may contain proprietary (Draper non-public) and/or export-controlled information of Draper. If you are not the intended recipient of this email, please immediately notify the sender by replying to this email and immediately destroy all copies of this email.

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DRAPER

Automated Inspection Systems for ATOS Triple Scan 16M

GOM ScanBox 5120

Space requirements (W x L x H)	3.30 m x 3.30 m x 2.70 m
Max. part size	Up to 2 m
Max. part weight	Up to 500 kg
Automated axes	7
Robot controller	Integrated
Master controller	Integrated
Viewing windows	8
Entry	sliding door with safety locks
Opening width	1.40 m
Floor mounting or fixing	Not Required
Loading	Manual, transport cart, pallet truck
Price	$171,250.00
Total price: (includes ATOS Triple Scan 16M, automated system and all accessories)	$383,865.00



- Fully automated “Plug & Play” inspection center designed for the ATOS Blue Light system
- Utilizes FANUC M-20iA industrial robot with 7 axis of automated movement
- Capable of performing fully automated inspection on parts up to 2 meters in diameter and up to 500 kg

Capture 3D MC-XL

Space requirements (W x L x H)	2.40 m x 1.60 m x 2.85 m
Max. part size	.60 m x .60 m x .70 m
Max. part weight	Up to 217 kg
Automated axes	6
Robot controller	Integrated
Master controller	Integrated
Viewing windows	Transparent Enclosure
Entry	Enclosure w/sliding door
Opening width	1.20 m
Floor mounting or fixing	Not Required/Portable
Loading	Manual
Price	$113,000.00
Total price: (includes ATOS Triple Scan 16M, automated system and all accessories)	$325,615.00



- Fully automated custom inspection center designed by Capture 3D specifically for ATOS Blue Light system
- Comes with transparent enclosure (not shown above)
- 6 axis of automated movement capable of measuring parts up to .60 m in diameter and up to 217 kg
- Comparable to GOM ScanBox 5120 in all areas except for max part size and 1 less automated axis of movement

Custom Automated Inspection Cell

Space requirements (W x L x H)	N/A
Max. part size	.60 m x .60 m x .70 m
Max. part weight	Up to 500 kg
Automated axes	7
Robot controller	Requires development/integration
Master controller	Requires development/integration
Viewing windows	N/A
Entry	N/A
Opening width	N/A
Floor mounting or fixing	Must be fixtured to floor
Loading	Manual
Price	$77,585 + Integration Costs
Total price: (includes ATOS Triple Scan 16M, Fanuc M20iA and Single Axis Rotary Platform)	$290,200 + Integration Costs





- Cost of individual components is less than ScanBox or MC-XL, however, it does not include peripheral equipment or development/integration costs
  - Application specific peripherals + programming + integration costs can range from $50k – 70k
  - Includes controllers, teach pendants, enclosures, software etc.
- Quoted equipment (Fanuc M20iA) is the same industrial robot used in the GOM ScanBox 5120

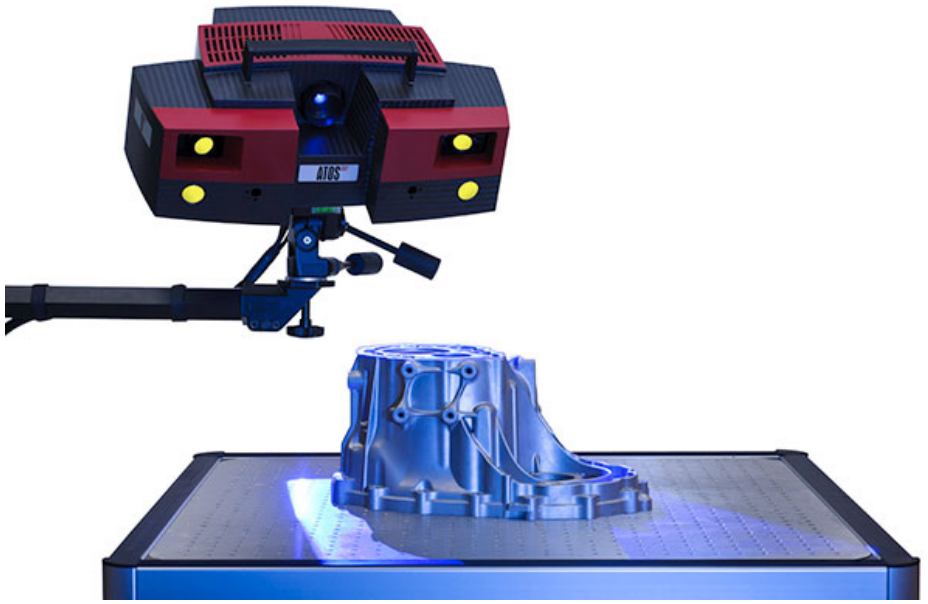
DRAPER

Recommendation for Blue Light 3D Mapping System

GOM Atos Triple Scan 16M



Field of View	(170mm x 130mm) - (810mm x 610mm)
Depth of Field	440mm - 800mm
Point Cloud Spacing	.03mm - .16mm
Point Cloud Accuracy	.0127 mm - .02 mm
Convert to STL	yes
Exposure Time	.5 s - 6 s
Mounting	Tripod/Industrial Robot
Weight	12.7 kg
Software	ATOS Professional
Operating Environment	5 - 40 °C
D&B Supplier Eval. Risk Rating	2
Price	$200k
Comments	Optional GOM Touch Probe for individual point measurements.



- High accuracy system with the option of using GOM Touch probe for individual point measurement
  - This can be used to measure inclusions that can't be mapped with structured light
- Consistent with existing qualified measurement systems for key aerospace manufacturers

From:	Molina-Rios, Carmen
Sent time:	04/14/2016 01:41:36 PM
To:	Tom Maloney <tmaloney@ccat.us>
Subject:	FW: [External] DECD Equipment Purchase - Task 5
Attachments:	Capture3D Quote for ATOS 16M with PlusBox and ScanBox.pdf GOM Atos Triple Scan Recommendation.pptx

Tom,

Here is the equipment recommendation.

Carmen

-----Original Message-----

From: Molina-Rios, Carmen

Sent: Tuesday, April 12, 2016 3:26 PM

To: Wayne Sumple

Subject: FW: [External] DECD Equipment Purchase - Task 5

Hi Wayne,

Thanks for reaching out on the equipment purchase. This is the full recommendation under consideration. Please let me know if there would be any issues with this equipment at CCAT to support the RADE Task 5 deliverables.

Carmen

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TS-16-170mm	170mm X 130mm X 130mm Measuring Volume with calibration artifact for an ATOS 16M Triple Scan	1	6,300.00	6,300.00
TS-16-560mm	535mm X 400mm X 320mm Measuring Volume with calibration artifact for an ATOS 16M Triple Scan	1	6,300.00	6,300.00
			TOTAL	

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30% down bal due on receipt	5/7/2016	8-10 Weeks

Item	Description	Qty.	PRICE	Total
ScanBox 5120	ScanBox 5120 - Robot Module with robot and controller, ScanBox Master Controller, customization of robot cable guiding and connectors for ATOS ScanBox, sensor adapter and carrier for robot module—For use with ATOS II-TS, ATOS III-TS or ATOS III-TS+ only. - Rotation Table Module with additional driver and motor for 7th axis, rotation table, D800 rotation table plate and carrier for rotation table module. -Robot on 400mm height extension - Machine housing - Software for robot safety and communication. - Documentation with CE Certification and declaration of conformity, documentation of the mechanical and electrical components, operating manual and definition of the Virtual Measuring Room (VMR) -VMR Software - 12 months of warranty - Assembly and initial operation of ATOS ScanBox: 4 man days. - VMR offline and online training: 2 man days. Dimensions: 3300mm width x 3300mm depth x 2700mm height, for components with max diameter of 2000mm and max height of 2000mm.	1	171,250.00	171,250.00
ATOS II/III-TS C...	ATOS II/III - TS 10M sensor cable. sensor head to PC.	1	1,625.00	1,625.00
			TOTAL	**$444,835.00**

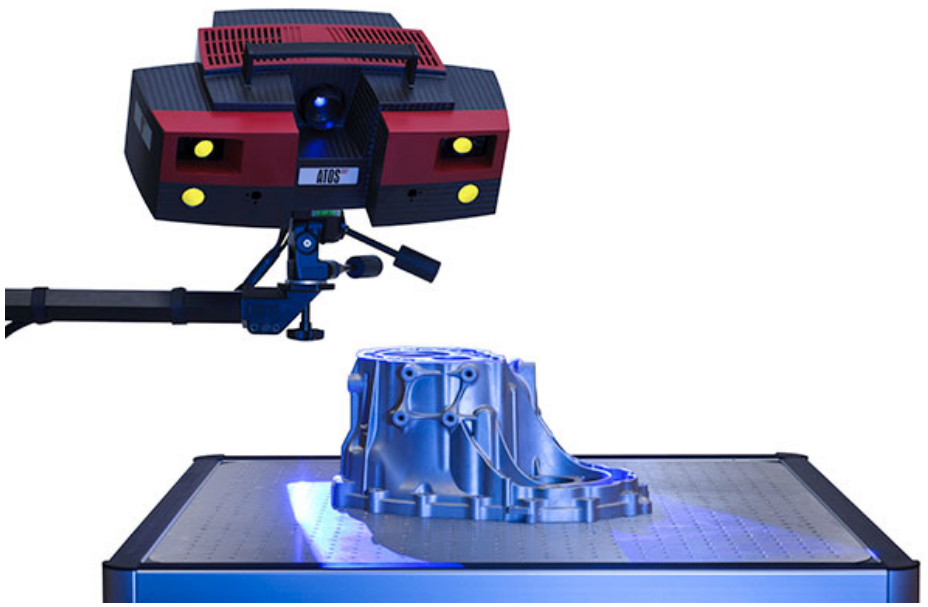
DRAPER

Recommendation for Blue Light 3D Mapping System

GOM Atos Triple Scan 16M with PlusBox



Field of View	(130mm x 130mm) - (400mm x 320mm)
Depth of Field	170mm - 535mm
Point Cloud Spacing	.03mm - .16mm
Point Cloud Accuracy	.0127 mm - .02 mm
Convert to STL	yes
Exposure Time	.5 s - 6 s
Mounting	Industrial Robot (Fanuc M20iA)
Weight	12.7 kg
Software	ATOS Professional
Operating Environment	5 - 40 °C
D&B Supplier Eval. Risk Rating	2
Price	$273,585.00
Comments	Optional GOM Touch Probe for individual point measurements.



- High accuracy system with the option of using GOM Touch probe for individual point measurement
  - This can be used to measure inclusions that can't be mapped with structured light
- Additional PlusBox allows for automated qualification of reference frames
- Consistent with existing qualified measurement systems for key aerospace manufacturers

GOM ScanBox 5120

Space requirements (W x L x H)	3.30 m x 3.30 m x 2.70 m
Max. part size	Up to 2 m
Max. part weight	Up to 500 kg
Automated axes	7
Robot controller	Integrated
Master controller	Integrated
Viewing windows	8
Entry	sliding door with safety locks
Opening width	1.40 m
Floor mounting or fixing	Not Required
Loading	Manual, transport cart, pallet truck
Price	$171,250.00
Total price: (includes ATOS Triple Scan 16M, automated system and all accessories)	$444,835.00



- Fully automated “Plug & Play” inspection center designed for the ATOS Blue Light system
- Utilizes FANUC M-20iA industrial robot with 7 axis of automated movement
- Capable of performing fully automated inspection on parts up to 2 meters in diameter and up to 500 kg

From: Molina-Rios, Carmen
Sent time: 05/11/2016 10:40:14 AM
To: Russo, Deborah
Subject: FW: [External] DECD Equipment Purchase - Task 5

See Don's and Tom's emails.

Sent from my Windows Phone

From: Tom Maloney
Sent: 4/21/2016 1:49 PM
To: 'Fernandez, Barbara'
Cc: Molina-Rios, Carmen; Don Balducci
Subject: RE: [External] DECD Equipment Purchase - Task 5

21-Apr-2016

Dear Barbara,

CCAT has reviewed the DECD supplier survey results, the information prepared by Draper, and have had a brief discussion with Pratt&Whitney regarding the different GOM ATOS blue light systems. We support the consensus that the GOM ATOS ScanBox with Triple Scan 16M is the appropriate selection as this will demonstrate the technology for the supply chain. We believe that the ScanBox model 5108 is best for use within the ITC, not model 5120. These models represent the same technology and are just different physical size - the 5108 model will satisfy vast majority of part sizes of interest.

DECD received a quotation for the ScanBox model 5120. Physical size and weight of that model may create implementation challenges for some manufacturers and possibly at the Innovation Technology Center space at CCAT. We recommend the ScanBox model 5108. Model 5108 is smaller than model 5120 but the 5108 will serve most needs of the supply chain and would be more affordable than the model 5120. Model 5108 would serve the technology demonstration purposes for Pratt&Whitney and their suppliers just as well as model 5120. CCAT is confident that the ITC room can be modified (if needed) to accommodate model 5108. A quotation for the model 5108 will be required.

In Summary, the GOM Atos Triple Scan 16M with the 5108 ScanBox would serve us best for the ITC.

Thank you,
Tom

Dr. Thomas M. Maloney
Chief Technology Officer
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street, Suite 106
East Hartford, CT 06108
Phone: 860.282.4936 (x-436)
E-Mail: tmaloney@ccat.us

From: Fernandez, Barbara [mailto:Barbara.Fernandez@ct.gov]
Sent: Wednesday, April 20, 2016 12:33 PM
To: Tom Maloney
Cc: Molina-Rios, Carmen
Subject: RE: [External] DECD Equipment Purchase - Task 5

Thank you Tom. I will be traveling starting on Friday and want to sign the equipment requisition by tomorrow. I appreciate your prompt response.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

Please consider the environment before printing

Connecticut
still revolutionary
Follow DECD

From: Tom Maloney [mailto:tmaloney@ccat.us]
Sent: Wednesday, April 20, 2016 12:24 PM
To: Fernandez, Barbara
Subject: RE: [External] DECD Equipment Purchase - Task 5

Hello Barbara-
I will indeed reply Barbara. Getting our final thoughts together.
Thank you,
Tom

From: Fernandez, Barbara [mailto:Barbara.Fernandez@ct.gov]
Sent: Wednesday, April 20, 2016 9:57 AM
To: Tom Maloney
Subject: FW: [External] DECD Equipment Purchase - Task 5

Tom- Since Don is out please respond to my request. Thanks

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

Please consider the environment before printing

Connecticut
still revolutionary
Follow DECD

From: Don Balducci [mailto:dbalducci@ccat.us]
Sent: Wednesday, April 20, 2016 9:56 AM
To: Fernandez, Barbara
Subject: Automatic reply: [External] DECD Equipment Purchase - Task 5

Out of the office until 4/21 If you want to speak with someone immediately please call Mirek Popielarczyk at extension 138 or Direct dial 860.282.4238 and he will be able to direct your call. Thank You Don

---

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From:	Molina-Rios, Carmen
Sent time:	04/07/2016 03:55:34 PM
To:	Russo, Deborah
Subject:	FW: [External] DECD Equipment Purchase - Task 5
Attachments:	Capture3D Quote for ATOS 16M with PlusBox and ScanBox.pdf GOM Atos Triple Scan Recommendation.pptx

Fyi, I've asked Beatriz to weigh in on their recommendation. We are almost there on this:)

-----Original Message-----

From: Wittstein, Bryan E. [mailto:bwittstein@draper.com]

Sent: Thursday, April 07, 2016 3:35 PM

To: Molina-Rios, Carmen

Cc: Gutierrez, Beatriz; Fernandez, Barbara; Holmes, Steven M.; Serna, Frank J.

Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

Attached is the quote that we received from Capture3D which includes the ATOS Triple Scan 16M, the PlusBox, the ScanBox 5120 and all 3 lens sets. This should include everything that Kun Tong mentioned in his email. Also attached is an updated recommendation for the whole system. Please let me know if there is any other information that I could provide that would be helpful for making a final decision. Thanks!

Bryan E. Wittstein

Draper Laboratory | 555 Technology Square Cambridge, MA 02139

Phone: 617-258-1519

Email: bwittstein@draper.com

-----Original Message-----

From: Wittstein, Bryan E.

Sent: Wednesday, April 06, 2016 3:54 PM

To: 'Molina-Rios, Carmen' <Carmen.MolinaRios@ct.gov>; Serna, Frank J. <fserna@draper.com>; Holmes, Steven M. <sholmes@draper.com>

Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>

Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

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Bryan E. Wittstein

Draper Laboratory | 555 Technology Square Cambridge, MA 02139

Phone: 617-258-1519

Email: bwittstein@draper.com

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Tuesday, April 05, 2016 3:56 PM

To: Serna, Frank J. <fserna@draper.com>; Holmes, Steven M. <sholmes@draper.com>; Wittstein, Bryan E. <bwittstein@draper.com>

Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>

Subject: FW: [External] DECD Equipment Purchase - Task 5

Team,

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Thank you,

Carmen

-----Original Message-----

From: Tong, Kun PW [mailto:Kun.Tong@pw.utc.com]

Sent: Tuesday, April 05, 2016 3:29 PM

To: Molina-Rios, Carmen

Cc: DRESCHER, JOSEPH D PW; Brindley, William J PW; Gutierrez, Beatriz; Fernandez, Barbara; Russo, Deborah

Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

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purchase the plus box (integrated photogrammetry system) so reference frames (which carries reference dots to help aligning images from different angle) can be qualified automatically. Depends on the size of the part and feature to be inspected, the lens set used can be 170mm, 320mm or 560mm. If you have any other question, please feel free to contact me.

Best regards,

Kun

_____

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Capture 3D, Inc.
Headquarters
3505 Cadillac Avenue, F1
Costa Mesa, CA 92626 USA
(714) 546-7278

Quotation

Date	Quote #
4/7/2016	14946

Prepared by:
Capture 3D, Incorporated
Phone: (714) 546-7278
Fax: (714) 546-7279
accounting@capture3d.com

Prepared For:

Draper Laboratory
Bryan Wittstein
555 Technology Square
Cambridge, MA 02139

Terms	Valid Until	Shipping
30% down bal due on receipt	5/7/2016	8-10 Weeks

Item	Description	Qty.	PRICE	Total
ATOS 16M Plus ...	ATOS Triple Scan 16M with Integrated 29M photogrammetry unit on a 400 frame with one measuring volume: 320mm x 240mm x 240mm packed in a stable travel case for optimal protection and easy traveling. ATOS Triple Scan a structured blue-light 3D Scanner that operates as 3 sensors- in- 1 featuring two 16 mega pixel measuring cameras providing 16-million PPS (points per scan) packed in a durable travel case. Each high quality optical camera works independently capturing accurate 3D scans from left, right, and both cameras with high-resolution feature detail. Each scan is automatically aligned within the software. The ATOS Professional Live XL Software offers complete rapid 3D scanning, mesh editing, and parametric inspection. Other features include: Industry specific inspection features, creating measurement plans, templates, teaching by doing, trend analysis, GD &T, online tracking, reverse projection, photogrammetry functionality, and more. Integrated third camera for photgrammetry includes lens, carbon fiber scale bar set with clamps and additional XL photogrammetry software. Packed in a stable travel case for optimal protection and easy traveling. Complete Industrial Dell 7810.L Rackmount PC with 24'' TFT monitor mounted in a 19” Rack with wheels for easy transportation and protection: 2x Intel 3.1GHz DecaCore, 64 GB RAM, Nvidia Quadro K4200, 512GB SSD + 2 x 2TB HDD (Raid), keyboard, mouse, Windows 7 (64 bit) operating system, and external USB system backup hard drive ASABA enhanced stand system, 2.1, 2.5 or 3.0 meter height, 1M or 1.7M horizontal arm, articulating head and additional counterbalance weight. Accessories: set of tools, thermometer, one (1) touch probe, uncoded targets, training manuals and ATOS acceptance test report for each measuring volume. One year all inclusive hardware and software support Three days of on-site training by a Capture 3D Engineer.	1	259,360.00	259,360.00
TS-16-170mm	170mm X 130mm X 130mm Measuring Volume with calibration artifact for an ATOS 16M Triple Scan	1	6,300.00	6,300.00
TS-16-560mm	535mm X 400mm X 320mm Measuring Volume with calibration artifact for an ATOS 16M Triple Scan	1	6,300.00	6,300.00
			TOTAL	

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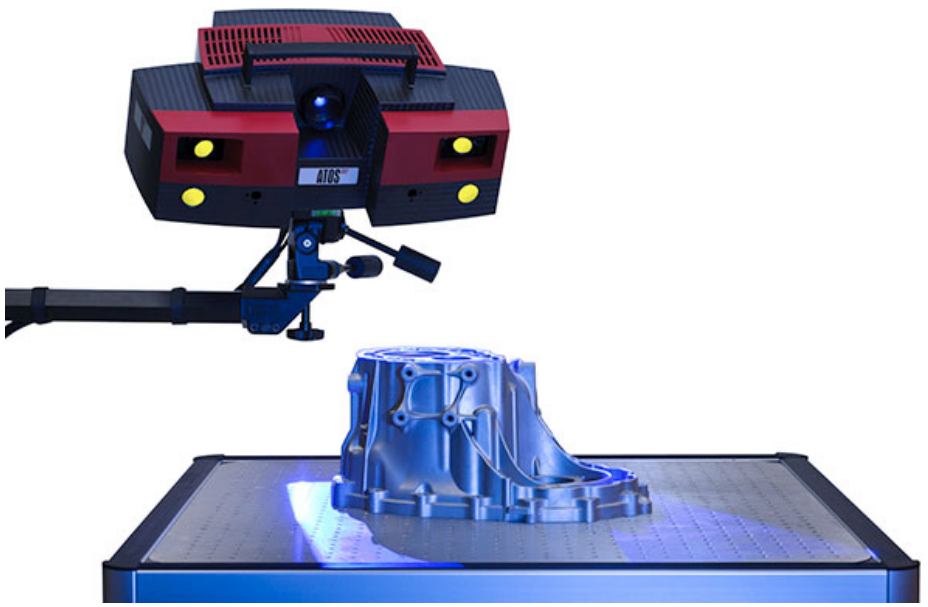
DRAPER

Recommendation for Blue Light 3D Mapping System

GOM Atos Triple Scan 16M with PlusBox



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Depth of Field	170mm - 535mm
Point Cloud Spacing	.03mm - .16mm
Point Cloud Accuracy	.0127 mm - .02 mm
Convert to STL	yes
Exposure Time	.5 s - 6 s
Mounting	Industrial Robot (Fanuc M20iA)
Weight	12.7 kg
Software	ATOS Professional
Operating Environment	5 - 40 °C
D&B Supplier Eval. Risk Rating	2
Price	$273,585.00
Comments	Optional GOM Touch Probe for individual point measurements.



- High accuracy system with the option of using GOM Touch probe for individual point measurement
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GOM ScanBox 5120

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Max. part size	Up to 2 m
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From:	Molina-Rios, Carmen
Sent time:	04/22/2016 04:26:25 PM
To:	Russo, Deborah
Cc:	Fernandez, Barbara
Subject:	FW: [External] DECD Equipment Purchase - Task 5
Attachments:	Capture3D Quote for ATOS 16M with PlusBox and ScanBox.pdf GOM Atos Triple Scan Recommendation.pptx

Debbie,

This is the quote we received. However, you need an invoice; right? That is something different. I will need to contact the company on Monday. Not sure if the quote is sufficient.

Carmen

-----Original Message-----

From: Wittstein, Bryan E. [mailto:bwittstein@draper.com]

Sent: Thursday, April 07, 2016 3:35 PM

To: Molina-Rios, Carmen

Cc: Gutierrez, Beatriz; Fernandez, Barbara; Holmes, Steven M.; Serna, Frank J.

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Best regards,

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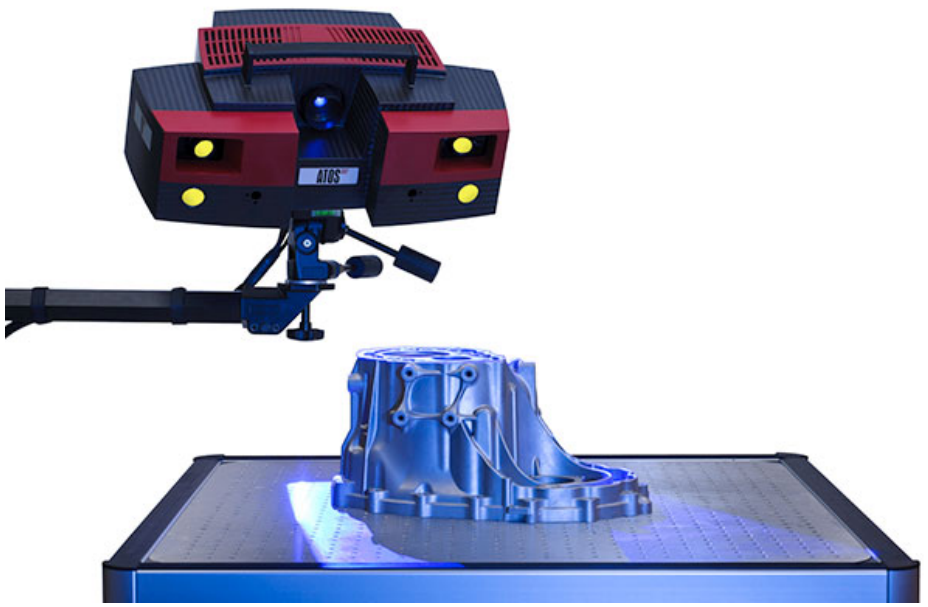
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Comments	Optional GOM Touch Probe for individual point measurements.



- High accuracy system with the option of using GOM Touch probe for individual point measurement
  - This can be used to measure inclusions that can't be mapped with structured light
- Additional PlusBox allows for automated qualification of reference frames
- Consistent with existing qualified measurement systems for key aerospace manufacturers

GOM ScanBox 5120

Space requirements (W x L x H)	3.30 m x 3.30 m x 2.70 m
Max. part size	Up to 2 m
Max. part weight	Up to 500 kg
Automated axes	7
Robot controller	Integrated
Master controller	Integrated
Viewing windows	8
Entry	sliding door with safety locks
Opening width	1.40 m
Floor mounting or fixing	Not Required
Loading	Manual, transport cart, pallet truck
Price	$171,250.00
Total price: (includes ATOS Triple Scan 16M, automated system and all accessories)	$444,835.00



- Fully automated “Plug & Play” inspection center designed for the ATOS Blue Light system
- Utilizes FANUC M-20iA industrial robot with 7 axis of automated movement
- Capable of performing fully automated inspection on parts up to 2 meters in diameter and up to 500 kg

From:	Wayne Sumple <wsumple@ccat.us>
Sent time:	04/12/2016 04:21:48 PM
To:	Molina-Rios, Carmen
Cc:	Don Balducci <dbalducci@ccat.us>; Jeff Crandall <jcrandall@ccat.us>; Mirek Popielarczyk <mpopielarczyk@ccat.us>
Subject:	FW: [External] DECD Equipment Purchase - Task 5
Attachments:	Capture3D Quote for ATOS 16M with PlusBox and ScanBox.pdf GOM Atos Triple Scan Recommendation.pptx

Hello Carmen,

Shouldn't be any issues. But I would like to verify the ScanBox 5120 will fit through a 7' by 7' doorway. I also would like to know the power requirements for the entire system. Who should I ask? Any idea on delivery date?

-----Original Message-----
From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, April 12, 2016 3:26 PM
To: Wayne Sumple
Subject: FW: [External] DECD Equipment Purchase - Task 5

Hi Wayne,

Thanks for reaching out on the equipment purchase. This is the full recommendation under consideration. Please let me know if there would be any issues with this equipment at CCAT to support the RADE Task 5 deliverables.

Carmen

STATEMENT OF CONFIDENTIALITY: The information contained in this e-mail and any attachments to this message are intended for the exclusive use of the addressee(s) and may contain confidential or privileged information. If denoted as proprietary, the contents of this e-mail and any attachments remain the property of the sender and may not be used for any purpose other than the intention of this transmission. If you are not the intended recipient, please notify Connecticut Center for Advanced Technology, Inc., at 860-291-8832 immediately, and destroy all copies of this message and any attachments.

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Capture 3D, Inc.
Headquarters
3505 Cadillac Avenue, F1
Costa Mesa, CA 92626 USA
(714) 546-7278

Quotation

Date	Quote #
4/7/2016	14946

Prepared by:
Capture 3D, Incorporated
Phone: (714) 546-7278
Fax: (714) 546-7279
accounting@capture3d.com

Prepared For:

Draper Laboratory
Bryan Wittstein
555 Technology Square
Cambridge, MA 02139

Terms	Valid Until	Shipping
30% down bal due on receipt	5/7/2016	8-10 Weeks

Item	Description	Qty.	PRICE	Total
ATOS 16M Plus ...	ATOS Triple Scan 16M with Integrated 29M photogrammetry unit on a 400 frame with one measuring volume: 320mm x 240mm x 240mm packed in a stable travel case for optimal protection and easy traveling. ATOS Triple Scan a structured blue-light 3D Scanner that operates as 3 sensors- in- 1 featuring two 16 mega pixel measuring cameras providing 16-million PPS (points per scan) packed in a durable travel case. Each high quality optical camera works independently capturing accurate 3D scans from left, right, and both cameras with high-resolution feature detail. Each scan is automatically aligned within the software. The ATOS Professional Live XL Software offers complete rapid 3D scanning, mesh editing, and parametric inspection. Other features include: Industry specific inspection features, creating measurement plans, templates, teaching by doing, trend analysis, GD &T, online tracking, reverse projection, photogrammetry functionality, and more. Integrated third camera for photgrammetry includes lens, carbon fiber scale bar set with clamps and additional XL photogrammetry software. Packed in a stable travel case for optimal protection and easy traveling. Complete Industrial Dell 7810.L Rackmount PC with 24'' TFT monitor mounted in a 19” Rack with wheels for easy transportation and protection: 2x Intel 3.1GHz DecaCore, 64 GB RAM, Nvidia Quadro K4200, 512GB SSD + 2 x 2TB HDD (Raid), keyboard, mouse, Windows 7 (64 bit) operating system, and external USB system backup hard drive ASABA enhanced stand system, 2.1, 2.5 or 3.0 meter height, 1M or 1.7M horizontal arm, articulating head and additional counterbalance weight. Accessories: set of tools, thermometer, one (1) touch probe, uncoded targets, training manuals and ATOS acceptance test report for each measuring volume. One year all inclusive hardware and software support Three days of on-site training by a Capture 3D Engineer.	1	259,360.00	259,360.00
TS-16-170mm	170mm X 130mm X 130mm Measuring Volume with calibration artifact for an ATOS 16M Triple Scan	1	6,300.00	6,300.00
TS-16-560mm	535mm X 400mm X 320mm Measuring Volume with calibration artifact for an ATOS 16M Triple Scan	1	6,300.00	6,300.00
			TOTAL	

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Quotation

Date	Quote #
4/7/2016	14946

Prepared by:
Capture 3D, Incorporated
Phone: (714) 546-7278
Fax: (714) 546-7279
accounting@capture3d.com

Prepared For:

Draper Laboratory
Bryan Wittstein
555 Technology Square
Cambridge, MA 02139

Terms	Valid Until	Shipping
30% down bal due on receipt	5/7/2016	8-10 Weeks

Item	Description	Qty.	PRICE	Total
ScanBox 5120	ScanBox 5120 - Robot Module with robot and controller, ScanBox Master Controller, customization of robot cable guiding and connectors for ATOS ScanBox, sensor adapter and carrier for robot module—For use with ATOS II-TS, ATOS III-TS or ATOS III-TS+ only. - Rotation Table Module with additional driver and motor for 7th axis, rotation table, D800 rotation table plate and carrier for rotation table module. -Robot on 400mm height extension - Machine housing - Software for robot safety and communication. - Documentation with CE Certification and declaration of conformity, documentation of the mechanical and electrical components, operating manual and definition of the Virtual Measuring Room (VMR) -VMR Software - 12 months of warranty - Assembly and initial operation of ATOS ScanBox: 4 man days. - VMR offline and online training: 2 man days. Dimensions: 3300mm width x 3300mm depth x 2700mm height, for components with max diameter of 2000mm and max height of 2000mm.	1	171,250.00	171,250.00
ATOS II/III-TS C...	ATOS II/III - TS 10M sensor cable. sensor head to PC.	1	1,625.00	1,625.00
			TOTAL	**$444,835.00**

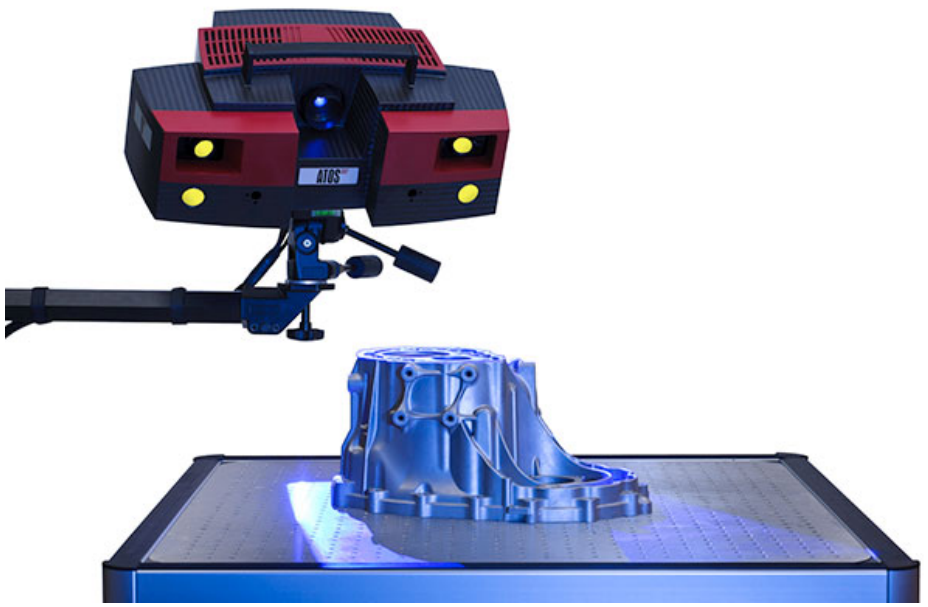
DRAPER

Recommendation for Blue Light 3D Mapping System

GOM Atos Triple Scan 16M with PlusBox



Field of View	(130mm x 130mm) - (400mm x 320mm)
Depth of Field	170mm - 535mm
Point Cloud Spacing	.03mm - .16mm
Point Cloud Accuracy	.0127 mm - .02 mm
Convert to STL	yes
Exposure Time	.5 s - 6 s
Mounting	Industrial Robot (Fanuc M20iA)
Weight	12.7 kg
Software	ATOS Professional
Operating Environment	5 - 40 °C
D&B Supplier Eval. Risk Rating	2
Price	$273,585.00
Comments	Optional GOM Touch Probe for individual point measurements.



- High accuracy system with the option of using GOM Touch probe for individual point measurement
  - This can be used to measure inclusions that can't be mapped with structured light
- Additional PlusBox allows for automated qualification of reference frames
- Consistent with existing qualified measurement systems for key aerospace manufacturers

GOM ScanBox 5120

Space requirements (W x L x H)	3.30 m x 3.30 m x 2.70 m
Max. part size	Up to 2 m
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Automated axes	7
Robot controller	Integrated
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Opening width	1.40 m
Floor mounting or fixing	Not Required
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Price	$171,250.00
Total price: (includes ATOS Triple Scan 16M, automated system and all accessories)	$444,835.00



- Fully automated “Plug & Play” inspection center designed for the ATOS Blue Light system
- Utilizes FANUC M-20iA industrial robot with 7 axis of automated movement
- Capable of performing fully automated inspection on parts up to 2 meters in diameter and up to 500 kg

From:	Molina-Rios, Carmen
Sent time:	04/07/2016 03:49:42 PM
To:	Gutierrez, Beatriz
Cc:	Fernandez, Barbara
Subject:	FW: [External] DECD Equipment Purchase - Task 5
Attachments:	Capture3D Quote for ATOS 16M with PlusBox and ScanBox.pdf GOM Atos Triple Scan Recommendation.pptx

Beatriz,

What are your thoughts?

Carmen

-----Original Message-----

From: Wittstein, Bryan E. [mailto:bwittstein@draper.com]

Sent: Thursday, April 07, 2016 3:35 PM

To: Molina-Rios, Carmen

Cc: Gutierrez, Beatriz; Fernandez, Barbara; Holmes, Steven M.; Serna, Frank J.

Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

Attached is the quote that we received from Capture3D which includes the ATOS Triple Scan 16M, the PlusBox, the ScanBox 5120 and all 3 lens sets. This should include everything that Kun Tong mentioned in his email. Also attached is an updated recommendation for the whole system. Please let me know if there is any other information that I could provide that would be helpful for making a final decision. Thanks!

Bryan E. Wittstein

Draper Laboratory | 555 Technology Square Cambridge, MA 02139

Phone: 617-258-1519

Email: bwittstein@draper.com

-----Original Message-----

From: Wittstein, Bryan E.

Sent: Wednesday, April 06, 2016 3:54 PM

To: 'Molina-Rios, Carmen' <Carmen.MolinaRios@ct.gov>; Serna, Frank J. <fserna@draper.com>; Holmes, Steven M. <sholmes@draper.com>

Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>

Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

The recommendation and price quote that Draper provided did not include the PlusBox. I have already reached out to Capture3D and I will provide updated quotes as soon as I receive them. This will include prices for the ATOS scanner itself, the ScanBox 5120 , the PlusBox and all required peripherals.

Bryan E. Wittstein

Draper Laboratory | 555 Technology Square Cambridge, MA 02139

Phone: 617-258-1519

Email: bwittstein@draper.com

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Tuesday, April 05, 2016 3:56 PM

To: Serna, Frank J. <fserna@draper.com>; Holmes, Steven M. <sholmes@draper.com>; Wittstein, Bryan E. <bwittstein@draper.com>

Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>

Subject: FW: [External] DECD Equipment Purchase - Task 5

Team,

Can you confirm for me that your recommendation included everything recommended by Kun Tong? I wasn't sure about the plus box is appropriate for the part sizes that would be brought to CCAT.

Thank you,

Carmen

-----Original Message-----

From: Tong, Kun PW [mailto:Kun.Tong@pw.utc.com]

Sent: Tuesday, April 05, 2016 3:29 PM

To: Molina-Rios, Carmen

Cc: DRESCHER, JOSEPH D PW; Brindley, William J PW; Gutierrez, Beatriz; Fernandez, Barbara; Russo, Deborah

Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

Yes. The GOM Scanbox and triple scan sensor is what PW is using and recommending. For a fully automated system, we usually also purchase the plus box (integrated photogrammetry system) so reference frames (which carries reference dots to help aligning images from different angle) can be qualified automatically. Depends on the size of the part and feature to be inspected, the lens set used can be 170mm, 320mm or 560mm. If you have any other question, please feel free to contact me.

Best regards,

Kun

_____

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_____

Capture 3D, Inc.
Headquarters
3505 Cadillac Avenue, F1
Costa Mesa, CA 92626 USA
(714) 546-7278

Quotation

Date	Quote #
4/7/2016	14946

Prepared by:
Capture 3D, Incorporated
Phone: (714) 546-7278
Fax: (714) 546-7279
accounting@capture3d.com

Prepared For:

Draper Laboratory
Bryan Wittstein
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Terms	Valid Until	Shipping
30% down bal due on receipt	5/7/2016	8-10 Weeks

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Date	Quote #
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Capture 3D, Incorporated
Phone: (714) 546-7278
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30% down bal due on receipt	5/7/2016	8-10 Weeks

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ATOS II/III-TS C...	ATOS II/III - TS 10M sensor cable. sensor head to PC.	1	1,625.00	1,625.00
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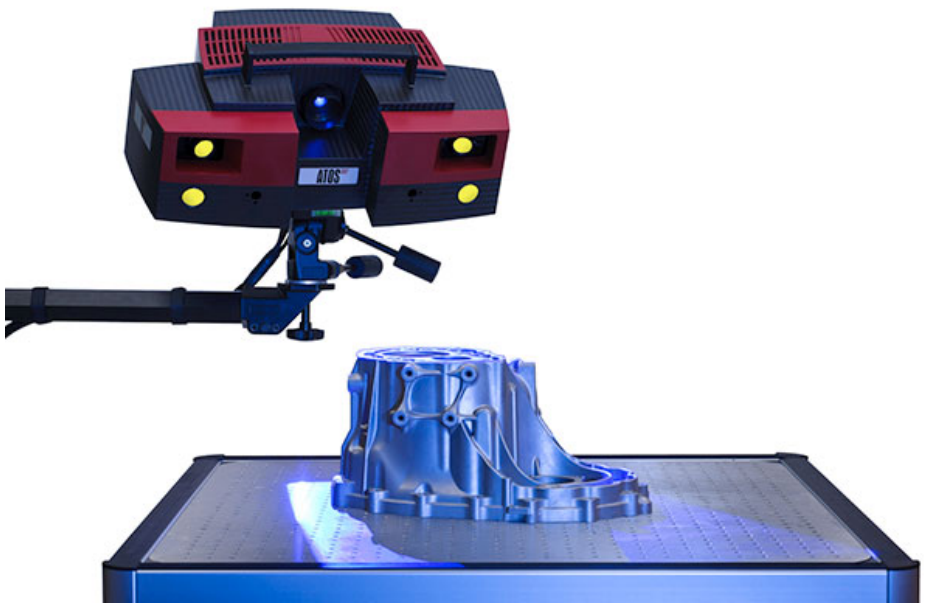
DRAPER

Recommendation for Blue Light 3D Mapping System

GOM Atos Triple Scan 16M with PlusBox



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GOM ScanBox 5120

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- Fully automated “Plug & Play” inspection center designed for the ATOS Blue Light system
- Utilizes FANUC M-20iA industrial robot with 7 axis of automated movement
- Capable of performing fully automated inspection on parts up to 2 meters in diameter and up to 500 kg

From: Molina-Rios, Carmen
Sent time: 03/21/2016 01:55:10 PM
To: Fernandez, Barbara
Subject: FW: [External] DECD Equipment Purchase - Task 5

Please see Bryan's email below. What do you think?

Sent from my Windows Phone

From: Wittstein, Bryan E.
Sent: 3/21/2016 1:42 PM
To: Molina-Rios, Carmen
Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

Would it be possible for Draper to contact Kun directly? I was hoping to compare the robotic automation system that P&W already has with what GOM recommends. Thanks!

Bryan E. Wittstein
Draper Laboratory | 555 Technology Square
Cambridge, MA 02139
Phone: 617-258-1519
Email: bwittstein@draper.com

-----Original Message-----
From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Monday, March 21, 2016 8:57 AM
To: Wittstein, Bryan E. <bwittstein@draper.com>; Holmes, Steven M. <sholmes@draper.com>
Subject: FW: [External] DECD Equipment Purchase - Task 5

Bryan,

Do you have the spec and cost to the robotic automation system Kun is referring to? Can you please send it to me?

Thank you.

Carmen

Sent from my Windows Phone
_____
From: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>
Sent: 3/21/2016 8:22 AM
To: Tong, Kun PW<mailto:Kun.Tong@pw.utc.com>
Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>
Subject: RE: [External] DECD Equipment Purchase - Task 5

Good morning Kun,

Thank you for confirming and your recommendation.

Regards,

Carmen

Sent from my Windows Phone
_____
From: Tong, Kun PW<mailto:Kun.Tong@pw.utc.com>
Sent: 3/18/2016 6:10 PM
To: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>
Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>
Subject: Re: [External] DECD Equipment Purchase - Task 5

Carmen,

Yes, that is the sensor. I would recommend a robotic automation system with it if funding allows. Thanks

Kun

Sent from my iPhone

On Mar 18, 2016, at 3:24 PM, Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov<mailto:Carmen.MolinaRios@ct.gov>> wrote:

<image001.jpg>
Good Afternoon Everyone,

Please see attached the spec for the ATOS Triple Scan 16M. Please confirm for us that this is the system utilized by PW as the Blue Light production system that has been qualified.

Thank you again for your time and helping us understand they equipment/technology better.

Regards,

Carmen

_____
From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, March 15, 2016 4:41 PM
To: 'Brindley, William J PW' <William.Brindley@pw.utc.com<mailto:William.Brindley@pw.utc.com>>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov<mailto:Beatriz.Gutierrez@ct.gov>>; Wittstein, Bryan E. <bwittstein@draper.com<mailto:bwittstein@draper.com>>; Russo, Deborah <Deborah.Russo@ct.gov<mailto:Deborah.Russo@ct.gov>>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov<mailto:Mayra.S.Holbrook@ct.gov>>; Holmes, Steven M. <sholmes@draper.com<mailto:sholmes@draper.com>>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com<mailto:joseph.drescher@pw.utc.com>>; Tong, Kun PW <Kun.Tong@pw.utc.com<mailto:Kun.Tong@pw.utc.com>>; 'Don Balducci' <dbalducci@ccat.us<mailto:dbalducci@ccat.us>>
Cc: 'Tom Maloney' <tmaloney@ccat.us<mailto:tmaloney@ccat.us>>; Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>
Subject: DECD Equipment Purchase - Task 5

Good Afternoon Everyone,

Thank you again for your time this afternoon. It was extremely helpful to have everyone's perspective. As we discussed, Draper Labs will provide DECD with the spec and cost for the GOM Atos Triple Scan equipment. Once we receive that I will be sure to send out an email to the group to confirm that we heard you right and we are all on the same page prior to DECD acquiring the equipment.

Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860.270.8234
Fax: 860.707.1809
Email: Carmen.Molinarios@ct.gov<mailto:Carmen.Molinarios@ct.gov>

Please consider the environment before printing <image002.png> Follow DECD <image003.gif>
<http://www facebook.com/pages/DECD/188972734470153>

_____
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<GOM Atos Triple Scan Recommendation.pptx>

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_____

From: Molina-Rios, Carmen
Sent time: 03/21/2016 08:57:14 AM
To: bwittstein@draper.com; sholmes@draper.com
Subject: FW: [External] DECD Equipment Purchase - Task 5

Bryan,

Do you have the spec and cost to the robotic automation system Kun is referring to? Can you please send it to me?

Thank you.

Carmen

Sent from my Windows Phone

From: Molina-Rios, Carmen
Sent: 3/21/2016 8:22 AM
To: Tong, Kun PW
Cc: Brindley, William J PW; DRESCHER, JOSEPH D PW; Gutierrez, Beatriz; Russo, Deborah
Subject: RE: [External] DECD Equipment Purchase - Task 5

Good morning Kun,

Thank you for confirming and your recommendation.

Regards,

Carmen

Sent from my Windows Phone

From: Tong, Kun PW
Sent: 3/18/2016 6:10 PM
To: Molina-Rios, Carmen
Cc: Brindley, William J PW; DRESCHER, JOSEPH D PW; Gutierrez, Beatriz; Russo, Deborah
Subject: Re: [External] DECD Equipment Purchase - Task 5

Carmen,

Yes, that is the sensor. I would recommend a robotic automation system with it if funding allows. Thanks

Kun

Sent from my iPhone

On Mar 18, 2016, at 3:24 PM, Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov> wrote:

> <image001.jpg>
> Good Afternoon Everyone,
>
> Please see attached the spec for the ATOS Triple Scan 16M. Please confirm for us that this is the system utilized by PW as the Blue Light production system that has been qualified.
>
> Thank you again for your time and helping us understand they equipment/technology better.
>
> Regards,
>
> Carmen

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, March 15, 2016 4:41 PM
To: 'Brindley, William J PW' <William.Brindley@pw.utc.com>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Wittstein, Bryan E. <bwittstein@draper.com>; Russo, Deborah <Deborah.Russo@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov>; Holmes, Steven M. <sholmes@draper.com>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>; Tong, Kun PW <Kun.Tong@pw.utc.com>; 'Don Balducci' <dbalducci@ccat.us>
Cc: 'Tom Maloney' <tmaloney@ccat.us>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Subject: DECD Equipment Purchase - Task 5

Good Afternoon Everyone,

Thank you again for your time this afternoon. It was extremely helpful to have everyone's perspective. As we discussed, Draper Labs will provide DECD with the spec and cost for the GOM Atos Triple Scan equipment. Once we receive that I will be sure to send out an email to the group to confirm that we heard you right and we are all on the same page prior to DECD acquiring the equipment.

Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860.270.8234
Fax: 860.707.1809
Email: Carmen.Molinarios@ct.gov

Please consider the environment before printing
<image002.png>
Follow DECD <image003.gif>

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<GOM Atos Triple Scan Recommendation.pptx>

From:	Molina-Rios, Carmen
Sent time:	01/06/2017 04:53:29 PM
To:	Fernandez, Barbara
Subject:	FW: 1/6/17 RADE Task 5 Weekly Status
Attachments:	DECD Weekly Status and Supplier List 010617.xlsx ITC Marketing Flyer E.docx

Fyi

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, January 06, 2017 4:10 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'
Subject: 1/6/17 RADE Task 5 Weekly Status

Carmen,

1) CCAT has secured participation of three suppliers utilizing the ITC's GOM ATOS scanner. They are Flanagan, GKN and New England Airfoil Products (NEAP). Representatives of NEAP were at the ITC on 1/5/17 to witness the scanning capability on one of their airfoils.

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   We can discuss these and other items at our scheduled 10:30 Conference call on Monday 1/9/17.

   Regards,

   Ken

Belcan Engineering
175 Addison Rd.
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Office Phone 860-683-5367
Cell Phone 203-584-8958

Task 5 – Manufacturing Innovation

Increase CT Companies cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

	2016				2017			Goal
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Sub Tasks:								
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5.2 Acquire and/or lease machinery, equipment	In work	In work	Complete					
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5.4 Perform outreach to supply chain	Ongoing							
5.5 Identify training needs								
5.5.1 GOM ATOS Scanner	Complete							
5.5.2 Supplier	0	0	0	2	2			
5.6 Deliver training (if/when appropriate)								
5.6.1 GOM ATOS Scanner			Initiated	Ongoing	Complete			
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5.7 Process Improvement project implementation	See Supplier Milestones Worksheet							
5.8 Analyze/report on manufacturing innovation	Monthly						Final	
Deliverable:								
• CT Innovation Technology Center is established, operational, and staffed	In work	In work	In work	Complete				
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Milestones and Timeline

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HOW DO I APPLY?

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wsumple@ccat.us
860-282-4222

Ken Devins
Belcan Engineering
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kdevins@belcan.com
860-683-5367

DEMONSTRATION PROJECT PROCESS

1. CT manufacturer to sign Non-Disclosure Agreement (NDA)
2. CT manufacturer to sign Export Control Intake Certification (ECIC)
3. CT manufacturer to complete Assistance Application for Structured Light Scanning
    a. Describe part(s) to be scanned
        i. Name of part
        ii. # of parts
        iii. Special handling instructions
    b. STRUCTURED LIGHT SCANNING (SLS)
        i. Identify data to be gathered during SLS demonstration project
            1. Time to process
            2. Cost to process - material consumed during process
            3. Metrology criteria – list of specific measurements or dimensional values required for evaluation of SLS
            4. Comparison of new measurements or dimensional values generated with SLS in the ITC to existing data taken by the SME at their facility
            5. Shipping/receiving instructions
    c. Provide format for report data
    d. Identify how part(s) will be delivered to/from ITC
        i. Supplier to hand carry to ITC
        ii. Supplier to ship to ITC

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        ii. # of parts
        iii. Special handling instructions
    b. STRUCTURED LIGHT SCANNING (SLS)
        i. Identify data to be gathered during SLS demonstration project
            1. Time to process
            2. Cost to process - material consumed during process
            3. Metrology criteria – list of specific measurements or dimensional values required for evaluation of SLS
            4. Comparison of new measurements or dimensional values generated with SLS in the ITC to existing data taken by the SME at their facility
            5. Shipping/receiving instructions
    c. Provide format for report data
    d. Identify how part(s) will be delivered to/from ITC
        i. Supplier to hand carry to ITC
        ii. Supplier to ship to ITC

Note: Attachment withheld pursuant to CGS § 1-210(b)(1)

From: Molina-Rios, Carmen
Sent time: 01/30/2017 04:38:07 PM
To: Fernandez, Barbara
Subject: FW: 1-27-17 RADE Task 5 Weekly Status
Attachments: Supplier Status CCAT 1-27-17.xlsx Supplier Status Draper 1-27-17.xlsx Justification for ITC Non-Destructive Inspection Equipment (Draft 1-26-17).docx

fyi

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Sunday, January 29, 2017 11:08 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; Vesce, Jennifer D Belcan Engineering Group, Inc
Subject: 1-27-17 RADE Task 5 Weekly Status

Carmen,

1) Belcan and CCAT had discussions with Barnes Aerospace and Aerospace Alloys to describe ITC services and consider potential projects. This activity is ongoing. An additional 4 suppliers have been contacted and we are awaiting responses.

2) CCAT has completed NDA's and is actively working projects with 4 suppliers including Flanagan, GKN, New England Airfoil Products (NEAP) and Hubbel.. NDA's are in process for 4 additional suppliers for structured light scanning projects at the ITC including EDAC, Phoenix, Connecticut Tool (Whitcraft) and Satellite Tool and Manufacturing. Draper has completed 2 projects (Deburring House and HABCO) and an additional 2 (GKN and Jonal) are working to schedule. (See the attachments for CCAT & Draper details).

3) Anticipate submittal of a formal proposal from CCAT defining a strategic plan to sustain availability and operational support for the state owned equipment residing at CCAT/ITC for 3 years beyond the Task 5 contract end date in March of 2017.

4) Justification for the purchase of an x-ray scanner was reviewed with DECD. Additional information was requested by DECD to strengthen the proposal. Belcan and CCAT were tasked with providing additional detail on specific parts that suppliers propose as candidates for x-ray scanning, as well as background information for the x-ray machine manufacturers providing quotes.

Regards,
Ken
Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Note: Withheld pursuant to CGS § 1-210(b)(1)

3 - Pages

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Scanning	[redacted]	Implemented	CCAT	[redacted]
GKN Aerospace	Andreas Anderson, Martin Thorden	Scanning		Implemented	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Scanning		Implemented	CCAT	
EDAC	Glenn Lussier - VP Quality	Scanning		Implemented	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Scanning		Implemented	CCAT	
Phoenix Manufacturing	Brad Hodgdon, Rob Revere, Salvador Robustelli	Scanning		Implemented	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Scanning		Implemented	CCAT	
Satellite Tool & Manufacturing	Jack Lukasik - President	Scanning		Implemented	CCAT	
Aero Gear, Inc.	Doug Rose	Scanning		Investigating	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Scanning		Investigating	CCAT	
Gros-ite (EDAC)	Ben Adams	Scanning		Investigating	CCAT	
Habco Industries	Brian Montanari President & CEO	Scanning		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Scanning		Investigating	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Deburring House Inc.	Stephen Cyr - Quality Mgr	Equipment Recommendation and Engineering Services	[redacted]	Implemented	Draper	[redacted]
GKN Aerospace	Martin Thorden - President,	Process Improvement, Equipment Recommendation and Engineering Services	[redacted]	Implemented	Draper	[redacted]
Habco Industries	Brian Montanari President & CEO	Process Improvement and Equipment Recommendation	[redacted]	Implemented	Draper	[redacted]
Jonal Laboratories, Inc.	Marc Nemeth - President	Process Improvement and Equipment Recommendation	[redacted]	Implemented	Draper	[redacted]
Admill Machine	Al Parlow	Process Improvement	[redacted]	Investigating	Draper	[redacted]
Avalon Advanced Technologies & Repair Inc.	Vino Franklin - President, Jeffrey Kelly - Quality Mgr	Process Improvement	[redacted]	Investigating	Draper	[redacted]
CAM Group LLC		Equipment Recommendation	[redacted]	Investigating	Draper	[redacted]
Flanagan Industries (EDAC)	DECD to define	Equipment Recommendation	[redacted]	Investigating	Draper	[redacted]

Polar Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mgr			Withdrawn	Draper	[redacted]

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	03/08/2017 01:59:48 PM
To:	Molina-Rios, Carmen
Cc:	Helton, Raven M. <rhelton@belcan.com>; Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	FW: Belcan Invoice
Attachments:	3699_001.pdf RADE Task 5 January 2017 Progress Report

Carmen,

I have attached the January 2017 Progress Report along with the corresponding invoice. Our Business Office is required to deliver the invoice directly to DECD, however I will follow-up with an email including both the progress report and invoice in the future for your records.

Thanks,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, March 08, 2017 12:14 PM
To: Devins, Kenneth
Cc: Forsyth, Jean M.
Subject: FW: Belcan Invoice

Hi Ken,

Can you please confirm for me that this invoice is being requested to be processed. In addition, please provide it with the reporting as we had discussed. I'm receiving invoices from multiple people. It should come from you or Jean with the report attached.

Please clarify this request.

Thanks,

Carmen

From: Helton, Raven M. [mailto:rhelton@belcan.com]
Sent: Wednesday, February 15, 2017 10:10 AM
To: Molina-Rios, Carmen
Subject: Belcan Invoice

Hello Carmen,

Please find your Belcan invoice attached for processing.

Please let us know if you have any questions.

Thank you,

Raven Helton
Belcan, LLC
7820 Redsky Drive
Cincinnati, OH 45249

Belcan

INVOICE

INVOICE NO.

2200822

Belcan Engineering Group, LLC
10200 Anderson Way
Cincinnati OH 45242
(513) 891-0972

Invoice Date: 01/29/17

Week Ending **01/29/17**

Customer P.O. No. ECDM1-0000013114

Belcan Job#: 3549030

Terms: Net 60 Days

CT DECD (Dept. of Economic & Comm. Dev)
Business & Econcomic Development
505 Hudson Street, 4th Floor
Hartford CT 06106-7106 USA

Attn.: Michelle Richmond

Prior Invoiced: $11,062.50

P.O. Limit: $148,500.00

RADE 2- Task 5

STOCK COMMERCIAL

Technical Contact: Rios-Molina, Carmen

ITEM	TYPE	UNITS	RATE	AMOUNT
Offsite Manufacturing Engineer	Straight Time	9.00	75.00	675.00
Technology Project Manager	Straight Time	126.50	75.00	9,487.50

PLEASE REMIT TO:
Belcan Engineering Group, LLC
Lockbox 771430
1430 Solutions Center
Chicago IL 60677-1004

PLEASE REMIT THIS AMOUNT-> $ 10,162.50
IN U.S. DOLLARS THANK YOU

ORIGINAL

Knight, Crystal

From: Devins, Kenneth <kdevins@belcan.com>
Sent: Friday, February 10, 2017 2:14 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'
Subject: RADE Task 5 January 2017 Progress Report
Attachments: ITC Marketing Flyer E.docx; Supplier Status Draper 2-3-17.xlsx; Supplier Status CCAT 2-3-17.xlsx; CCAT ITC Equipment Proposal 020217.pdf; AW: your inquiry; AW: your inquiry; RE: CT scanning with GE; CCAT UHART Nikon XTH225ST 12152016.pdf; CCAT ProCon Quote 0746_001.pdf; CCAT geit-31319_en_vtomex_sm_03_16 _metrology_scatter.pdf; CCAT ProCon CT-ALPHA_EN.pdf; CCAT NSI X5000 DR.CT System Quot....pdf; X-ray Supplier Details 2-1-17.xlsx; X-ray scanner comparison 2-1-17.xlsx

Carmen,

As requested a summary of RADE Task 5 activity for January is listed below:

1) CCAT accepted delivery of the GOM ATOS blue light scanner and worked with 3DSystems to install, de-bug and the calibrate equipment.
2) Completed GOM ATOS training provided by 3DSystems.
3) A Marketing brochure was prepared and submitted to selected suppliers for their consideration in concert with conference calls to discuss specific projects that could be performed demonstrating the GOM ATOS Blue Light Scanner capabilities (See Attachment).
4) Six additional suppliers began participating at the CCAT ITC in January for a total of nine to date.
5) Two Draper projects and one CCAT/ITC project were completed in January (See Attachments).
6) Nine additional suppliers were introduced to the CCAT/ITC thru Belcan contacts. Further discussions with 3 of these suppliers have so far added one active project.
7) A Sustainability proposal was prepared and delivered from CCAT to DECD identifying a means of continuing the ITC beyond the completion of the RADE Task 5 contract (See Attachment).
8) Demonstrations and quotes were solicited from four manufacturers of Computed Tomography X-ray Scanning equipment to support the selection of an optimal solution for adding this technology and capability to the ITC. Based on the teams evaluation the North Start Imaging X5000 is preferred over the Nikon, GE and ProCon offerings and accommodates the largest part size (See Attachments).

Please let me know if there are any questions.
Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Innovation Technology Center (ITC)

The State of Connecticut is looking for Connecticut defense manufacturers who want to evaluate if Structured Light Scanning (SLS) technology works for them. CT manufacturers can have a Demonstration Project performed at the newly constructed ITC. The ITC is sponsored by the Department of Defense Office of Economic Adjustment and the Connecticut Department of Economic and Community Development. The ITC is 1000 ft^2 of lab space managed by the Connecticut Center for Advanced Technology Inc. (CCAT) in East Hartford. There is no cost to participate.

WHAT IS A DEMONSTRATION PROJECT?

A demonstration project will allow CT manufacturers to evaluate structured light scanning technology against technologies (CMM or manual inspections) they are currently using. This will be done by using new technology on real parts and comparing results to what suppliers currently are achieving. A Structured Light Scanning Demonstration Project will allow suppliers to have one of their own manufactured parts scanned using the structured, blue light scanner available at the ITC:

- The GOM ATOS Scanbox 5108 is an optical 3D measuring machine developed for quality control in larger production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. (GOM Website)

CCAT personnel will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so that results from the new technology can be compared directly to results from the current technology being used by the supplier.

WHY DO AN SLS DEMONSTRATION PROJECT AT THE ITC?

- Mechanical measuring machines capture data in a point-based or linear manner while optical 3D coordinate measuring systems provide full-field deviations of 3D actual coordinates and CAD data
- The GOM ATOS machine is one example of optical scanning technology
- Compare new technology capabilities to current technology capabilities
- Evaluate impact on effectiveness, efficiency and productivity of new technology
- A Demonstration Project is FREE to CT defense manufacturers

A Non-Disclosure Agreement (NDA) can be executed to protect the manufacturer's process knowledge. CCAT is an ITAR controlled facility.

HOW DO I APPLY?

Complete the simple on-line application by going to the ITC Assistance Application and checking the box for "Structured light scanning/reverse engineering", or contact Mr. Wayne Sumple at CCAT or Mr. Ken Devins at Belcan.

Wayne Sumple
CCAT's Advanced Manufacturing Center
409 Silver Lane
East Hartford, CT. 06118
wsumple@ccat.us
860-282-4222

Ken Devins
Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
kdevins@belcan.com
860-683-5367

DEMONSTRATION PROJECT PROCESS

1. CT manufacturer to sign Non-Disclosure Agreement (NDA)
2. CT manufacturer to sign Export Control Intake Certification (ECIC)
3. CT manufacturer to complete Assistance Application for Structured Light Scanning
    a. Describe part(s) to be scanned
        i. Name of part
        ii. # of parts
        iii. Special handling instructions
    b. STRUCTURED LIGHT SCANNING (SLS)
        i. Identify data to be gathered during SLS demonstration project
            1. Time to process
            2. Cost to process - material consumed during process
            3. Metrology criteria – list of specific measurements or dimensional values required for evaluation of SLS
            4. Comparison of new measurements or dimensional values generated with SLS in the ITC to existing data taken by the SME at their facility
            5. Shipping/receiving instructions
    c. Provide format for report data
    d. Identify how part(s) will be delivered to/from ITC
        i. Supplier to hand carry to ITC
        ii. Supplier to ship to ITC

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]	Complete	CCAT	[redacted]
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)		Implemented	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)		Implemented	CCAT	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)		Implemented	CCAT	
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)		Implemented	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)		Implemented	CCAT	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)		Implemented	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)		Implemented	CCAT	
Phoenix Manufacturing	Brad Hodgdon, Rob Revere, Salvador Robustelli	Structured Light Scanning (SLS)		Implemented	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)		Investigating	CCAT	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)		Not interested	CCAT	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Deburring House Inc.	Stephen Cyr - Quality Mgr	Equipment Recommendation and Engineering Services	[redacted]	Completed	Draper	[redacted]
GKN Aerospace	Martin Thorden - President,	Process Improvement, Equipment Recommendation and Engineering Services		Implemented	Draper	
Habco Industries	Brian Montanari President & CEO	Process Improvement and Equipment Recommendation		Completed	Draper	
Jonal Laboratories, Inc.	Marc Nemeth - President	Process Improvement and Equipment Recommendation		Implemented	Draper	
Admill Machine	Al Parlow	Process Improvement		Investigating	Draper	
Avalon Advanced Technologies & Repair Inc.	Vino Franklin - President, Jeffrey Kelly - Quality Mgr	Process Improvement		Investigating	Draper	
CAM Group LLC		Equipment Recommendation		Investigating	Draper	

Flanagan Industries (EDAC)	DECD to define	Equipment Recommendation	[redacted]	Investigating	Draper	[redacted]
Polar Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mgr			Withdrawn	Draper	

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

STATE OF CONNECTICUT

Innovation Technology Center
(ITC)

CONNECTICUT CENTER FOR ADVANCED TECHNOLOGY, INC.

Proposal for Program Funding & Administration

February 2, 2017

Introduction and Foreword:

The Connecticut Center for Advanced Technology, Inc. (CCAT) respectfully submits this Economic Development Grant Proposal which seeks support for the continuation of the OEA RADE equipment currently in the Innovation Technology Center (ITC). For the period beginning immediately after the expiration of the OEA RADE program, CCAT proposes to use the acquired equipment as part of our mission to serve manufacturers with a special focus on Pratt & Whitney's supply chain for the F-135 engine.

About CCAT:

CCAT is a non-stock, tax-exempt corporation incorporated on May 3, 2004, and is funded under federal and state sponsored grants. CCAT's mission is to address 21st century economic challenges by creating partnerships which collaboratively provide services and resources to industry, academia, government and non-profit organizations that help them implement innovative solutions, increase efficiencies and improve workforce development. To be acknowledged by our clients as the "go to" resource for improving America's competitiveness and as the best practices partner for organizations and businesses with a technology focus. We will deliver value-added programs efficiently and effectively, with a bold entrepreneurial spirit, and attract the best and brightest people to our collaborative culture and landmark facilities.

Program Background and Summary:

The ITC was created as part of the OEA RADE contract with the federal government. Its purpose is to introduce new manufacturing technology to manufacturers with a particular focus on Pratt & Whitney's F-135 supply chain in preparation for future production. This Center is located at CCAT's Advanced Manufacturing Center and, as of the writing of this proposal, housed a GOM Atos Blue Light scanner purchased under the OEA RADE program as cost share. A second piece of equipment is contemplated (CT X-ray Scanning) but has not been fully defined yet.

CCAT proposes any equipment bought under the OEA RADE program become part of CCAT's AMC by means of a no-cost transfer. This equipment will continue to be used to demonstrate advanced technologies to manufacturers with a particular focus on the F-135 supply base for the same purpose for which it was originally intended. The equipment will become part of a pool of advance technology used by CCAT. CCAT will fund labor and maintenance expense using current and future federal, state and industry funding as applicable and will not require any new funding from the DECD.

Administrative Qualifications & Justification

CCAT has been involved with manufacturing technology since the company's inception in 2004. Our Advanced Manufacturing Center (AMC) serves as a national resource for applied manufacturing technology and boasts some of the most modern manufacturing equipment currently available in the marketplace. With the rapidly expanding interest in additive manufacturing, CCAT has also added both metal and plastic 3D printing capability to its inventory of advanced manufacturing equipment. CCAT recently installed a Hybrid DMG machine and is in the process of installing a new CNC Portal Milling Machine from Zimmermann for composites. The latest High Rate Additive Manufacturing (HRAM) equipment is expected to be installed later this year.

Through site visits, surveys, and research CCAT continually seeks to understand the needs of small and medium-sized manufacturers (SMMs). CCAT's history of conducting technology workshops, providing manufacturing training and productivity assessments to small and medium sized manufacturers makes it uniquely qualified to manage the additional equipment from the OEA RADE program. Included among our staff are degreed engineers and machinists with decades of combined manufacturing experience. Many individuals on our staff have also worked in manufacturing environments and understand the many unique challenges faced by manufacturers.

CCAT believes our AMC would be the best, most cost effective use of the OEA RADE equipment. CCAT has the right facility, staff, and programs to continue to effectively use this equipment in the manner it was intended. Our staff has been fully trained to use this equipment and has experience on projects with manufacturers using it. DECD would incur significant cost to rig out and move this equipment to any other location as well as potentially damaging it during a move.

The GOM Atos has already proven valuable to the manufacturing supply chain as we have received projects/inquirers from; EDAC, Flanagan, GKN, Hubbell, NEAP Phoenix, Satellite Tool, Alpha Q, Polamer, Pratt & Whitney (P&W) and Vivax Medical companies. We have also had interest from the Air Force Research Laboratory (AFRL) for measurement of artifacts to prove out the technology.

Program Summary & Procedures

1. **Overall Objective**

   CCAT's primary objective will be to make the OEA RADE equipment available to the manufacturing supply chain with a special emphasis on P&W's F-135 suppliers. CCAT will use funding from the various federal and state programs to fund this effort as well as appropriate cost share from manufacturers. We will follow whichever procedures are required by the funding source.

   CCAT will keep the equipment in good working order for the extent of its useful life, estimated to be approximately seven years. This equipment will become part of CCAT's fixed assets which are audited annually by an independent audit firm, a copy of which is supplied to the State of Connecticut each year.

2. **Management**

   The management of this equipment will be part of CCAT's AMC Directors' duties and responsibilities. He/she will be responsible for maintaining the equipment and for carrying out the objective of making it available to manufacturers and the F-135 supply chain.

3. **Reporting**

   At DECD's request, CCAT will provide a yearly summary of projects which used the OEA RADE equipment for the duration of its useful life. This summary would include:

   a.) Project description
   b.) Company
   c.) Funding source
   d.) Impact/outcome

4. **Scope of Services**

   Not applicable

5. **Budget Narrative**

   No further funds are requested after the completion of the OEA RADE program.

6. **Payment Schedule**

   Not applicable

Knight, Crystal

From: Gudat, Joachim <Joachim.Gudat@procon-x-ray.de>
Sent: Thursday, January 19, 2017 10:07 AM
To: Wayne Sumple
Subject: AW: your inquiry
Attachments: 31.66-00.00_Zusammenbau_11.jpg

Feature	Nikon 225	CT-ALPHA
Approx. Part Size / Area Capability	14" x 17"	19"diameter x 24 " height
Part Weight Limit	50 kg	90 kg
Motorized axes		6
Smallest 3D detail		3µm
X-ray Source	225 kV	225 kV, 300 Watts
X-ray Spot Size	3-225 µm	3-200 µm
X-ray Detector	127-200 µm	138 µm 420 x 420 mm, 3000 x 3000 pixels

Dear Wayne,
this configuration has a delivery of 16 weeks, it comes with all software, including offset-CT, fast-CT, helix-CT, artifact reductions, fast graphical reconstruction. Price tag: € 425,000.-. It could be optionally configured to accommodate a second tube and two additional detectors in the future.
Best regards

Joachim Gudat

ProCon X-Ray GmbH
Ludwig-Erhard-Ring 6A
D-31157 Sarstedt
Tel +49 5066 98414 0
Fax +49 5066 98414 99
www.procon-x-ray.de
Joachim.Gudat@procon-x-ray.de

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Geschäftsführer: Joachim Gudat, ProCon X-Ray GmbH, Ludwig-Erhard-Ring 6A, 31157 Sarstedt
HRB Hildesheim 203861 StNr.30/213/03554 USt-Ident DE156270754

Von: Wayne Sumple [mailto:wsumple@ccat.us]
Gesendet: Mittwoch, 18. Januar 2017 22:07
An: Gudat, Joachim <Joachim.Gudat@procon-x-ray.de>
Betreff: RE: your inquiry

Dear Joachim,
Thank you very much for the fast response. My customer has asked me to look for a machine similar to the Nikon 225. Approximately how much would a CT-ALPHA cost if it were configured similar to the following specs? And how fast could I have it delivered?

Feature	Nikon 225	CT-ALPHA
Approx. Part Size / Area Capability	14" x 17"	19"diameter x 24 " height
Part Weight Limit	50 kg	90 kg
Smallest 3D detail		3µm
X-ray Source	225 kV	225 kV, 300 Watts
X-ray Spot Size	3-225 µm	3-200 µm
X-ray Detector	127-200 µm	138 µm 420 x 420 mm, 3000 x 3000 pixels

From: Gudat, Joachim [mailto:Joachim.Gudat@procon-x-ray.de]
Sent: Wednesday, January 18, 2017 2:57 PM
To: Wayne Sumple
Cc: Kirste, Andreas
Subject: your inquiry

Dear Wayne,
I take the opportunity and answer your mail.
First of all, I thank you for your interest in our products.
The price range of regular ALPHA Systems is from € 300 k up to € 600 k.
X-Ray power and Flat Panel size are the main cost drivers. So it would be pretty important to know the material density and dimensions as well as your target applications, scanning speed, resolution, laboratory or production.
The CT-ALPHA concept allows us to tailor a system configuration very close to your needs: cabinet size, dual tube, multiple detectors, fast scan, high precision scan, offset scan, HELIX scan, stitched scan and so on. We compensate artefacts, geometrical inaccuracies, we reconstruct fast and compact. We offer interfaces to various visualization software. We install, train, and provide first level support through internet.
Our regular delivery time is 19 weeks.
Looking forward to our ongoing communication.
Best regards

Joachim Gudat

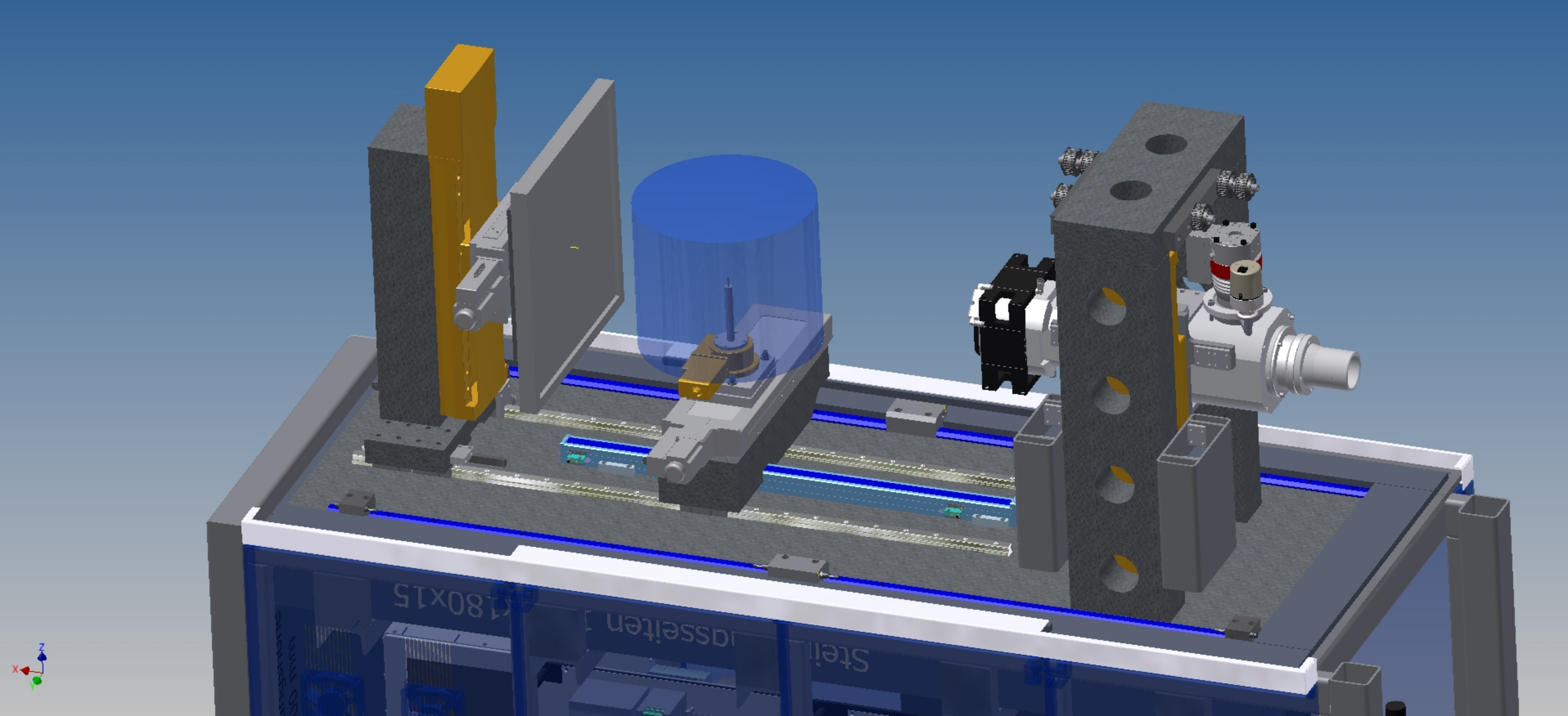
ProCon X-Ray GmbH
Ludwig-Erhard-Ring 6A
D-31157 Sarstedt
Tel +49 5066 98414 0
Fax +49 5066 98414 99
www.procon-x-ray.de
Joachim.Gudat@procon-x-ray.de



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Geschäftsführer: Joachim Gudat, ProCon X-Ray GmbH, Ludwig-Erhard-Ring 6A, 31157 Sarstedt
HRB Hildesheim 203861 StNr.30/213/03554 USt-Ident DE156270754

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Knight, Crystal

From: Bednar, Jim (GE Oil & Gas) <jim.bednar@ge.com>
Sent: Wednesday, January 18, 2017 5:25 PM
To: Wayne Sumple
Subject: RE: CT scanning with GE
Attachments: geit-31319_en_vtomex_sm_03_16_metrology_scatter.pdf

Wayne,

That budget would be about right for the v|tome|x s240.

See the flyer attached to this email and let me know if you think it can fit the bill.

Thanks,

Jim

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Wednesday, January 18, 2017 4:55 PM
To: Bednar, Jim (GE Oil & Gas) <jim.bednar@ge.com>
Subject: EXT: RE: CT scanning with GE

Jim - I have a budget of $450K. Which GE CT X-ray scanner is the best that I can get for that amount of money. Aerospace parts, jet engine parts, additive manufactured parts, not small parts, but not huge either. Metal, plastic and composite material. Laboratory environment. Will be used to demonstrate CT X-ray scanning technology to all sorts of manufacturing companies in region. Customer asked me to start out looking at the Nikon 225, but I don't really have much to compare it to.
Is there a GE model similar? If so, is it in my budget? How about delivery schedule?

Feature	Nikon 225
Approx. Part Size / Area Capability	14" x 17"
Part Weight Limit	50 kg
Smallest 3D detail	
X-ray Source	225 kV
X-ray Spot Size	3-225 µm
X-ray Detector	127-200 µm

From: Bednar, Jim (GE Oil & Gas) [mailto:jim.bednar@ge.com]
Sent: Wednesday, January 18, 2017 2:24 PM
To: Wayne Sumple
Subject: CT scanning with GE

Hello Mr. Sumple,

I was forwarded your contact information as someone who is interested in GE's products & services surrounding CT scanning.

After reviewing your website, I see that you are doing to Additive Manufacturing, which is a topic that is near and dear to my heart personally (I sold AM services for 4 years) and of course GE's. If you are mainly interested in looking at parts made via Additive, I can tell you that most GE facilities that do metals AM use the v|tome|x series of scanners, mostly skewing toward the c450 as it has enough power to get through dense materials and relatively thick walls.

I've attached a brochure on that scanner for your review.

The scanners all have a high level of customization available from software to part manipulators and a whole host of other options. But for purposes of providing a ballpark amount, the c450 typically sells for around $1 million, plus or minus 15%.

If you can tell me a little more about the type of parts you are planning to scan, what exactly you are looking for and maybe your budget range, I can help you to find a suitable solution within the family of products that GE has available.

I appreciate your time and I look forward to hearing from you.

Best regards,

Jim Bednar
Key Account Sales Manager – Radiography
GE Inspection Technologies

M (216) 218-9611
E jim.bednar@ge.com

GE imagination at work
www.ge-mcs.com

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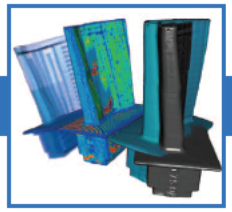
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GE
Inspection Technologies

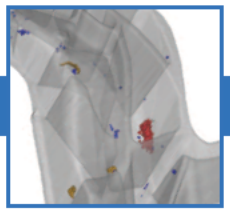
First industrial microCT system with advanced scatter|correct technology

phoenix v|tome|x m

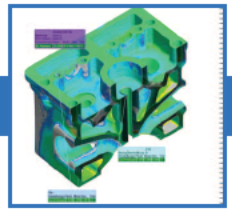
Powerful versatile X-ray microfocus CT system for 3D metrology and analysis with up to 300 kV / 500 W



3D analyses of a scanned turbine blade.



Automatic pore volume analysis in an aluminum casting.



3D measurements and nominal-actual CAD comparison on an aluminum cylinder head.

Key features & benefits

- scatter|correct: highly improved CT quality level compared to conventional mikrofocus cone beam CT
- Industry leading magnification and power at 300 kV for high absorbing samples on a wide application range
- Unique dual|tube configuration for high power µCT as well as high resolution nanoCT®
- First compact 300 kV microfocus CT system with < 1 µm detail detectability
- metrology|edition for precision measurements with up to 4+L/100 µm referring to VDI 2630 guideline*
- Max. sample size up to 500 mm Ø x 600 mm in height; 3D scanning area max. 290 mm Ø x 400 mm; up to 50 kg (110 lbs.)

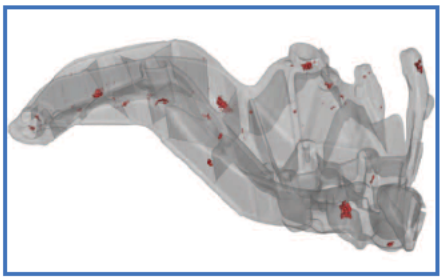


phoenix v|tome|x m

High-end tool for 3D industrial and scientific analysis tasks

Within the phoenix v|tome|x m, GE's unique 300 kV microfocus X-ray tube is for the first time available in a compact CT system for industrial process control as well as for scientific research applications. Beyond down to < 1 µm detail detectability, the system offers industry leading magnification and power at 300 kV. GE's high dynamic DXR digital detector array and the click & measure|CT automatization functionality make it an efficient 3D tool for industrial inspection and scientific research. Due to its dual|tube configuration, detailed 3D information for an extremely wide sample range is provided: from high resolution nanoCT® of low absorbing samples up to high power µCT applications such as turbine blade inspection.

Industrial non-destructive 3D testing

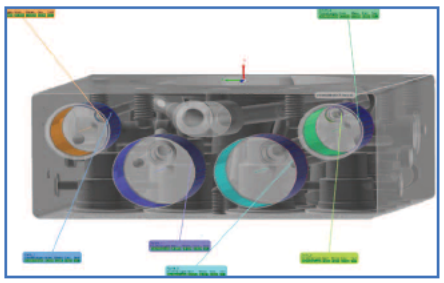


Automated 3D porosity analysis in an automotive control arm

Beyond high-resolution 3D analysis in R&D and failure analysis labs, the phoenix v|tome|x m allows even 3D production control due to its powerful 300 kV tube and high dynamic detector technology for fast CT acquisition, fast velo|CT volume reconstruction and its high automation grade. Applications are, e.g., in light metal casting, electronics assembly, plastics molding as well as in turbine blade inspection:

- Internal defect analysis / 3D quantitative porosity analysis
- Assembly control
- Materials structure analysis

Reproducible precision 3D metrology with CT

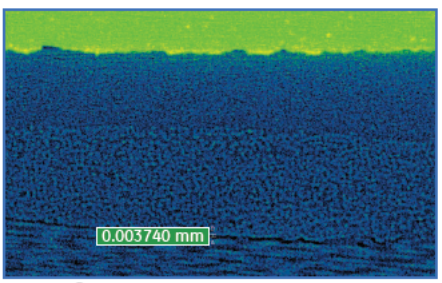


3D metrology of internal features of a valve block made of high grade aircraft aluminum

Especially if complex parts with hidden or difficult accessible surfaces have to be measured, 3D CT offers big advantages in comparison with conventional tactile or optical coordinate measuring machines (CMMs) e.g. for work piece qualification and fast first article inspection. Optimized for long term stability and equipped with its specific 3D metrology package and advanced scatter|correct technology, the phoenix v|tome|x m includes all essential features for CT with extremely high accuracy and reproducibility:

- Accuracy specification of 4+L/100 µm referring to VDI 2630 guideline*
- Nominal-actual CAD comparison
- Dimensional measurements / wall thickness analysis
- Reverse engineering / tool compensation

Explore the 3rd dimension of science



nanoCT® of an aluminium plate (green) welded with carbon fibers in polyamide matrix

With it's high resolution 180 kV nanoCT® option, the new phoenix v|tome|x m opens a non destructive third dimension for scientific research down to the submicron scale - with no required preparation, slicing, coating or vacuum treatment. Analyze biomedical, materials science, composite, electronics or geological samples with down to < 1 micron voxel size.

Compact CT system with unique dual|tube combination

phoenix datos|x CT software

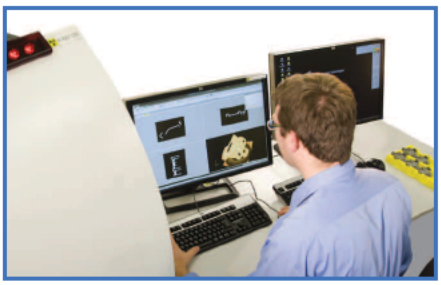
Fully automated data acquisition and volume processing

With datos|x, the entire CT process chain can be fully automated. Once the appropriate setup is programmed, the whole scan and reconstruction process as well as 3D failure analysis or metrology evaluations like generation of first article inspection reports can be executed automatically.

Precise, reliable and fast CT results

By using phoenix datos|x CT software, 3D metrology and failure analysis with phoenix|x-ray CT systems becomes as fast and easy as never before.

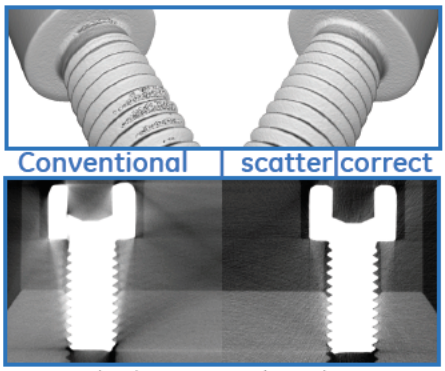
- click & measure|CT: Fully automated data acquisition and volume processing – insert sample, start CT scan, check results
- Reproducible high precision 3D metrology and failure analysis tasks performed with a minimum of operator training
- Significant reduction of required operator time by factor of up to 5
- Wide spectrum of modules for ease of use and accurate CT results



Easy and user friendly CT operation and evaluation.

Unique scatter|correct technology

GE's breakthrough scatter|correct technology innovation is exclusively available in industrial microCT for the v|tome|x m system. This technological advancement automatically removes scatter artifacts from the CT volume, allowing users to gain significant improved CT results compared to conventional cone beam microCT.



Compared with conventional cone beam CT, scatter|correct significantly improves the result quality of CT

phoenix v|tome|x m - Your Advantages

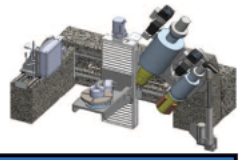
- **Reduced CT artifacts by up to 300 kV X-ray radiation and advanced, high quality scatter|correct option**
- **High precision 3D metrology referring to VDI standard 2630 and non destructive testing tasks performed with minimal operator training**
- **Increased 3D inspection throughput due to high power X-ray tube, efficient, fast detector technology and a high grade of automation**
- **Very high image quality due to unique GE DXR detector array with an extremely high dynamic range**
- **All major hardware and CT software components of the system are proprietary GE technology optimally compatible with one another**
- **Significant reduction of required operator time by using the click & measure|CT functionality**
- **Stability optimized CT acquisition conditions due to temperature stabilized X-ray tube, digital detector array and cabinet**



The unique 300 kV microfocus X-ray tube allows 3D scans even of large or high absorbing work pieces.

CT - measure and control with insight

Technical Specifications & Configurations



	phoenix v|tome|x s	phoenix v|tome|x m**
X-ray tube type	Open directional high-power microfocus X-ray tube, closed cooling water circuit. Optional additional (open) transmission high power nanofocus X-ray tube	
Max. voltage / power	240 kV / 320 W	300 kV / 500 W. Alternatively available with 240 kV / 320 W microfocus X-ray tube
	Optional additional 180 kV / 15 W in dual|tube configuration. Easy tube exchange just by a push of a button	
Geometrical magnification (3D)	1.46 x to 100 x; up to 200 x with nanofocus tube	1.3 x to 100 x at 800 mm FDD (min. sample Ø 2 mm), up to 200 x with nanofocus tube
Detail detectability	Down to < 1 micron (microfocus tube); optional down to < 0.5 micron (nanofocus tube)	
Min. voxel size	Down to 2 microns (microfocus tube)	Down to 1 micron (microfocus tube)
	Optional down to <1 micron (nanofocus tube)	
Measurement accuracy		4+L/100 µm referring to VDI 2630-1.3 guideline* /**
Detector type (all according US ASTM E2597-07 standard)	Temperature stabilized digital GE DXR detector array, 200 µm pixel size, 1,000 x 1,000 pixels, 200 x 200 mm, extremely high dynamic range > 10000:1, 2x detector enlargement	Temperature stabilized digital GE DXR detector array, 200 µm pixel size, 2000 x 2000 pixels, 400 x 400 mm, extremely high dynamic range > 10000:1
	Optional 400 x 400 mm large 4 MPixel DXR detector (without detector enlargement)	
Manipulation	6-axes metal precision manipulator	Granite based precision 5-axes manipulator (6-axes with detector shift)
Focus-detector-distance	800 mm	800 mm fixed
Max. sample diameter x height	max. 3D scanning size up to 260 mm x 420 mm	360 mm x 600 mm; up to 500 x 600 mm with limited travel range, max. 3D scanning size up to 290 mm x 400 mm
Max. sample weight	max. up to 10 kg (220 lbs.)	High accuracy CT up to 20 kg (44 lbs.); max. up to 50 kg (110 lbs.)
Focus object distance (microfocus tube)	7 mm to 545 mm	8 mm to 600 mm at FDD 800 (min. sample Ø 2 mm)
System dimensions W x H x D	2,170 mm x 1,690 mm x 1,500 mm (85.4" x 66.5" 59")	2,620 mm x 2,060 mm x 2,980 mm (103" x 81" x 117.3) D 1,570 mm (62") without user panel and generators
System weight (without ext. components)	Appr. 2,900 kg /6,400 lbs.	Appr. 7,960 kg /17,550 lbs. (300 kV configuration) Appr. 6,410 kg /14,150 lbs. (240 kV configuration)
Temperature stabilization	Active X-ray tube cooling | temperature stabilized detector	Active X-ray tube cooling | temperature controlled cabinet | temperature stabilized detector
Optional scatter|correct hard-/software bundle (also uprade option)		CT quality like 2D fan beam CT with minimized scatter radiation artifacts. Max. scan diameter: 260 mm, geom. magnification 1,51x - 100x
Opt. 2D inspection bundle	Tilt and rotation axes for tilted 2D inspection of samples up to 10 kg (22 lbs.) | 2D inspection software	
Opt. 3D metrology bundle** (also uprade option)	High accuracy direct measuring system | 2 calibration objects | phoenix datos|x CT software package "metrology"	
Opt. nanoCT® bundle	180 kV / 15 W high power nanofocus tube | Precision rotation unit with air bearings | diamond|window	
Opt. click&measure|CT	Optional fully automated CT process chain	included
Software	phoenix datos|x 3D computed tomography acquisition and reconstruction software. Different 3D evaluation software packages for 3D metrology, failure or structure analysis on request	
Radiation protection	The radiation safety cabinet is a full protective installation without type approval according to the German RöV. It complies with French NFC 74 100 and the US Performance Standard 21 CFR Subchapter J. For operation, other official licenses may be necessary.	

* Measured as deviation of sphere distance in tomographic static mode SD(TS), method details referring to VDI 2630-1.3 guideline on request, valid only for phoenix v|tome|x m metrology edition

** phoenix v|tome|x m metrology|edition only available in specific countries at present, more information on request

FROST & SULLIVAN
2016 BEST PRACTICES AWARD
GLOBAL INDUSTRIAL CT SYSTEMS COMPANY OF THE YEAR AWARD

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GEIT-31319EN 03/16

www.gemeasurement.com/x-ray

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Attn: Chittaranjan Sahay
Tel: 860-768-4852

Nikon Metrology Inc.
12701 Grand River Road
Brighton, Michigan 48116
United States of America
Tel: 810-220-4360
Fax: 810-220-4300

Prepared and issued by:
Ken Gribble
(512) 800-5286
Ken.Gribble@nikon.com

On behalf of:
Jeremy Wieloch
Sales Manager
Mobile: (860) 881-0744
Jeremy.Wieloch@nikon.com

December 15, 2016

Nikon Reference QOT-150206-21QFT-01-A

Dear Chittaranjan,

Thank you for your recent inquiry.

We are pleased to enclose the attached offer for your review.

Should you require any further information, do not hesitate to contact us.

Sincerely,

Jeremy Wieloch
Sales Manager

Proposal

Item	Product Code	Description	Qty	Total
1		**XT H 225 ST Motorized FID - With MRA - Reflection Source - PE 1620, dual source capable to add transmission source**	1	$ 602,300.00
1.1	**XT H 225 ST Reflection Target system with MRA**		1	Incl.
		- 225 kV 225 W High power X-Ray source *- X-Ray spot size starting from 3 µm* *- Open tube with replaceable Tungsten filament for low cost of ownership* *- Basic Filter Kit* *- 5 axis sample manipulator, 50 kg maximum weight* *- Manipulator max travel of 300 mm in X, 350 mm in Y and 750 mm in Z* *- Precision rotate stage for accurate CT* *- System PC (64 bit) with 16 GB RAM* *- Twin 22" flat panel monitors* *- System temperature stabilised with external chiller* *- System shielded to < 1 µSv/hr, no special precautions needed* *- Motorized Receptacle Alignment (MRA) for electronic alignment of filament* *- Motorized FID for precise detector to source adjustments*		
1.2	**Inspect-X SW for 225 and 320 kV systems**		1	Incl.
		- Control software for CT system *- Includes 2D Radiography analysis tools*		
1.3	**XT H 225 ST PE 1620 Panel with aluminium input window**		1	Incl.
		- Perkin Elmer 1620 detector *- 400 x 400 mm area with 2000 x 2000 pixels* *- 16 bit detector with 200 micron pixels* *- Increased bit depth gives better contrast sensitivity* *- Panel speed maximum 3.5 fps*		
1.4	**Silent X-ray system chiller (120 VAC)**		1	Incl.

Total	$ 602,300.00
System discount	$ 152,301.00
Grand total	**$ 449,999.00**

Terms and Conditions

Quote validity	This quotation is valid till January 15, 2017 (30 days) and is subject in its entirety to confirmation on receipt of order
Delivery	Max. 8 week(s) from receipt of technically cleared order. Note: One at this configuration and price. Subject to prior sale without notice at any time.
Payment terms	40% payable on order – delivery period starts from receipt of payment. Net 0 days after invoice date. 55% payable upon delivery. Net 0 days after invoice date. 5% payable upon acceptance. Net 30 days after invoice date.
Warranty	12 months after acceptance as per standard Nikon Metrology Terms and Conditions (full description available at the end of this document)
Title transfer	Ownership rests with buyer upon Ex Works status including all risks and reward of ownership.
Incoterms	EXW (Ex-works) Nikon Facility Please note that 15 days after notification of readiness, storage cost can be charged in case the goods have not been picked up by your preferred forwarder. The contemplated sale is subject to applicable export control regulations and delivery time starts from receipt of export approval.
Order address	Nikon Metrology Inc. 12701 Grand River Road Brighton, Michigan 48116 United States of America Tel: 810-220-4360 Fax: 810-220-4300 Email: OrderDept.NM-US@Nikon.com
Sales Tax	Quoted prices do not include sales tax. Applicable sales tax will be charged at time of invoicing based on the current rates in your local jurisdiction. If you are sales tax exempt, please provide a sales tax exemption certificate with your purchase order.

This quotation is offered subject to the standard terms and conditions for the supply of goods and associated services referenced. Export is subject to export license regulations and written approval from Nikon Metrology, Inc.

This proposal by Nikon Metrology contains proprietary commercial, financial and technical information and is being furnished to you only for the purpose of evaluating the proposal. Further use by you or disclosure to or use by others of the information in this proposal, except as required by law is strictly prohibited without the prior written consent of Nikon Metrology.

XT H 225 ST

The XT H 225 ST is a Large Cabinet Computed Tomography (CT) system ideally suited to a wide range of materials and sample sizes especially those that are too large for other systems in the range. The system has two interchangeable sources: the Ultrafocus (reflection) target operates between 20 and 225 kV providing a flexible tool for quality laboratories, production facilities and research departments. The Nanofocus transmission target operates between 20-180 kV to give a micron-sized spot leading to sub-micron feature recognition.



The system is fully interlocked and radiation shielded to better than 1 µSv/hr on all external surfaces. This makes the XT H 225 one of the safest systems on the market whilst being fully compliant with international safety regulations.

KEY FEATURES AND BENEFITS

HIGH SPEED CT

- The XT H 225 ST has been optimized for high speed Computed Tomography and real-time X-ray visualization.
- The FAST CT™ acquisition and reconstruction software reduces sample scanning times and provides maximum throughput from the system.

HIGH QUALITY

- Full user control over imaging chain from source to image processing and reconstruction.
- X-Tek high contrast, high power micro-focus source provides X-ray penetration and resolution at 225kV.
- State of the art digital imaging system options for a wide range of applications

SAFETY BY DESIGN

- Full shielded enclosure with continuous fail-to-safe monitoring and Interlocks
- Lead-lined cabinet fully complies to DIN 54113 radiation safety standards and CE regulation

LOW THROUGH LIFE COST

- Long life open X-ray tube – with low cost consumables.
- Planned maintenance schedule throughout system life.
- Compact design – system fits through standard double-doors enabling re-location to suit your business.

EASY TO USE

- Short learning curve – operational within 3 days
- Easy and fast interchange of targets for different uses
- CT wizard™ guides an operator easily through the data acquisition
- Improved failure analysis capability through 5 axis component manipulator.
- Local language support
- Operator and supervisor control modes

TECHNICAL SPECIFICATIONS

X-ray cabinet

The cabinet is shielded to better than 1.0 µSv/hour, fully compliant with international radiation safety regulations. The cabinet features dual, independent safety interlocks on the door as well as visual warnings of X-ray status.

The system is has a sliding access door for sample loading with a large lead glass viewing window and optional fully shielded user access port for experiment/equipment services.

225 kV microfocus X-ray source

The X-ray set comprises:

- Long life 225kV X-ray tube supplied with Ultra-focus target with Tungsten target and simple filter holder
- High voltage generator and control system
- Low maintenance vacuum system
- Essential filter kit

Ultrafocus X-ray set

Operating voltage	30 to 225 kV
Beam current	0 to 1 mA
Power rating	225 W High Power
Focal spot size	3 µm below 3 W[1], rising to 225 µm at 225 W
Spot position	6 mm behind output window
Beam angle	25° included angle, conical beam
Ultra-focus target	Replaceable tungsten target can be indexed under vacuum
Filament type	Tungsten 'hairpin' – 10 supplied free within the spares kit
Target indexing	Manual rotation of target in increments – 1,000 spot positions
X-ray target	Optional 4-metal target for K-edge emission
X-ray filtration	Be output window

[1] Measured at 80kV 3W

180 kV nano-focus X-ray source

The X-ray set comprises:

- Long life 225 kV X-ray tube supplied with NanoFocus target with Tungsten target and collimator
- High voltage generator and control system
- Low maintenance vacuum system
- Basic filter kit

Nanofocus X-ray set

Operating voltage	30 to 180 kV
Beam current	0 to 1 mA
Power rating	20W[1]
Focal spot size	1µm (below 2W)[2] rising to 10 µm depending on power
Spot position	0.25 mm behind output window
Beam angle	170° included angle, conical beam
Ultra-focus target	Replaceable tungsten target can be indexed under vacuum
Filament type	Tungsten 'hairpin' – 10 supplied free within the spares kit
Target indexing	Manual rotation of target in increments – >100 spot positions
X-ray filtration	Be output window

[1] 10 W recommended for long periods

[2] Measured at 80kV 80µA

Common specifications

Tube construction	Machined from high grade aluminum and stainless steel
Vacuum system	Turbo-molecular pump backed by 2-stage rotary vane pump
Cooling system	External sealed water cooling system
Pumping time	Approx. 10 minutes from atmospheric pressure

X-ray controller

Programmable X-ray controller and software provides the following functions:

- X-ray on, X-ray off and pre-warning.
- User adjustable incremental kV steps from 30 – 225 kV in 1 kV or 5 kV steps.
- User adjustable incremental µA steps from 0 – 1000 µA in 1 µA or 5 µA steps.
- Auto-focus, auto-defocus and focus trim
- Filament life timer
- Auto conditioning
- Full diagnostics display
- Individual interlock state display

CT sample manipulator

The XT H 225 ST is supplied with a 5-axis CT and failure analysis manipulator.

Max load	50 kg
Travel	(x) 450 mm x (y) 350 mm x (z) 750 mm
Tilt axis	+/- 30 degrees
Rotate axis	n*360 degrees
Source to detector distance	1,000 mm
Geometric magnification	> 150 times
Turntable resolution	Continuous rotation with 1/1000th degree resolution

A set of general CT sample holders is supplied for ease of sample mounting.

IMAGING SYSTEMS

There are four imaging systems that can be configured in this system. The highest performance all-round detector is fitted as standard.

- Standard - Real time detector (14bit) with 1900 x 1500 pixels with an active area of 467 cm^2.
- Optional – High dynamic range sensor (16bit) with 2000 x 2000 pixels with an active area of 1600 cm^2. Max frame rate 3.5 fps full resolution.
- Optional - High dynamic range high speed sensor (16bit) 2000 x 2000 with active area of 1600 cm^2 Max frame rate 7.5 fps full resolution.

Please see accompanying detector specification for more information on optimization for your application.

IMAGE PROCESSING

Inspect-X image processor and control software includes the following features:

- Live, average, save and load images
- Inspect-X CT wizard™
- Tone curve adjustment and memory
- Programming interface

A manual detailing all features is available upon request.

SYSTEM CONTROLLER

The system is controlled by a high performance PC Workstation operating under Windows XP Professional operating system. The X-ray image and controls are presented to the user on an ergonomic twin 22" TFT monitor display.

Standard Software:

- Inspect-X – X-Tek control software for the system
- X-Tek CT Pro license (32 bit) – an advanced reconstruction for reconstructing the CT data sets
- X-Tek FastCT reconstruction engine (32 bit)
- VGStudio – CT volume rendering software

ENVIRONMENTAL SPECS

Power supply	Single power socket rated at 100-220 V, 50/60 Hz, 20 A, single phase
Temperature control	System supplied with a closed loop chiller to control the cabinet source temperature to eliminate thermal drift from measurements

SYSTEM OPTIONS

1. High dynamic range sensor

The high dynamic range sensor is the best dedicated CT sensor with 2000 x 2000 pixels digitized to 16 bits sensor. This optional sensor can run at 3.5 fps.

2. High dynamic range high speed sensor

The high dynamic range sensor is the best dedicated CT sensor with 2000 x 2000 pixels digitized to 16 bits sensor. This optional sensor can run at 7.5 fps (15 fps at half-resolution) for real-time radiographic inspection at 16-bit sensitivity.

3. 225 kV Rotating target

An optional rotating target is available, this increases the available X-ray flux from the system by a factor of 3-5. This can be used to either increase the acquisition speed at the same signal to noise by this factor or to increase the signal to noise ratio by this factor in the same time.

4. Optional multi metal target

The standard tungsten target gives an X-ray energy spectrum which contains the bremstrahlung spectrum and the specific emission lines of Tungsten. For some materials, in particular composites, it is often better to have the specific emission at lower energies, this can be achieved by using different materials as a target. The multi metal target can be supplied with a choice of metals from Cu, Au, Ag and Mo.

5. Optional advanced filter kit

The advanced filter kit helps produce the best quality CT metrology conditions using the multi-metal target.

6. Sample holders

A selection of additional sample holder is available to increase the flexibility of the XT H 225. These include:-

- Self centering chuck
- Self centering vice

CT OPTIONS

1. Optional Advanced CT upgrade

This package upgrades the XT H 225 system to one of the fastest CT systems on the market.

The Advanced CT option includes a high performance 64-bit reconstruction workstation with following minimum specifications:

- 24GB RAM – for large volume visualization
- 1.2Tb storage – for data storage and retrieval
- 24” LCD monitor – for crisp image display
- Microsoft keyboard and mouse – for simple control

Full specifications of the Advanced CT package are available on request.

2. Additional workstations

In order to maximize the throughput from the system it is beneficial to have additional advanced CT processing stations. In order to facilitate this Nikon Metrology offers an advanced 64-bit PC specifically configured to optimize CT volume reconstruction and analysis. *Requires Option 1.*

Minimum PC specifications:

- 64-bit PC with Windows XP with 30” TFT monitor
- 32 Gb RAM

3. Workstation upgrade , 30” monitor

This replaces the 24” monitor on the reconstruction PC with a high performance 30” TFT monitor.

4. Workstation upgrade RAM Options

This is additional 64Gb RAM for use with any workstation running VGStudio MAX to enable larger volume rendering.

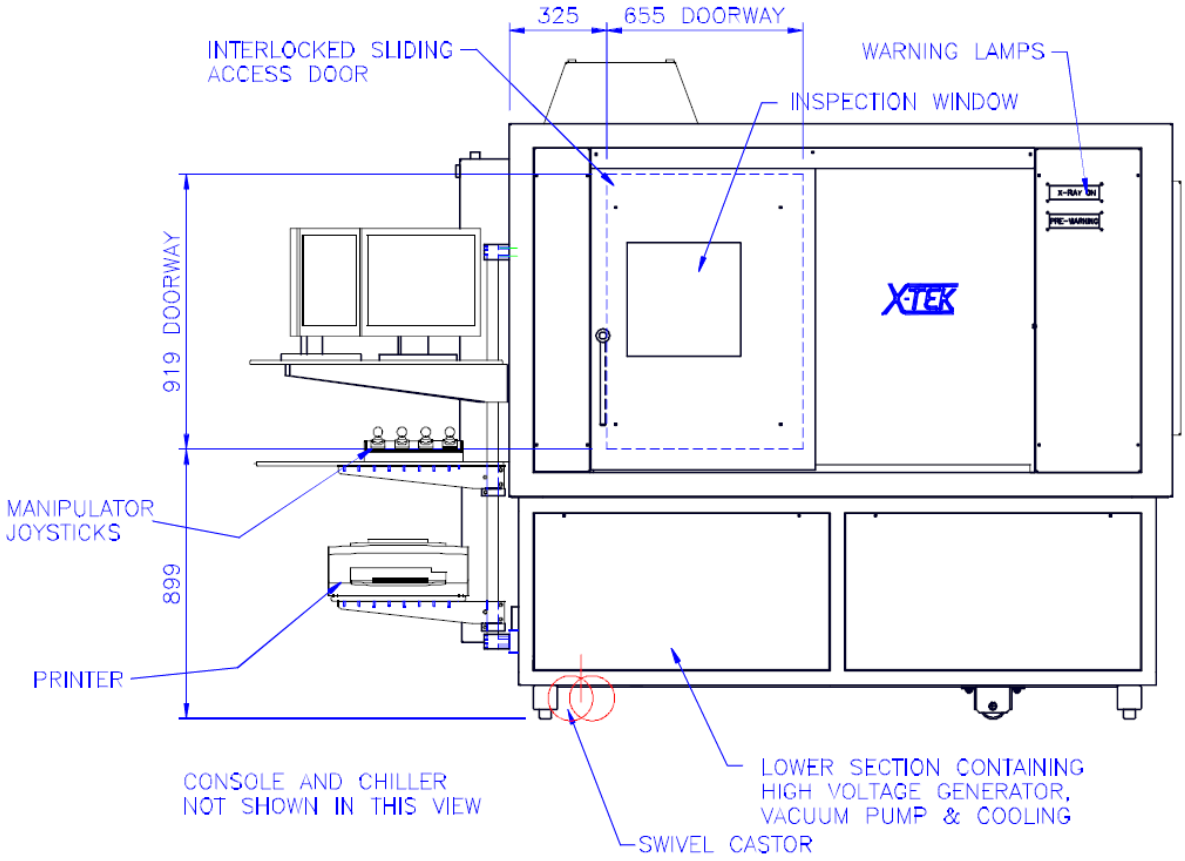
5. Volume Analysis software - upgrades

We recommend upgrading VGStudio to VGStudio MAX for use on additional workstations. There is a choice of:

- VGStudio MAX 64-bit 1 workstation license

- VGStudio MAX 64-bit 1 multi-workstation license
- Advanced analysis modules
    - Defect Analysis module
    - Wall thickness module
    - Co-ordinate measurement module
    - Cad comparison (Actual / nominal) (requires Co-ordinate measurement module)
    - Bundle module discounts for 2, 3 & 4 modules available

DIMENSIONS



Weight 4,200 kg

System dimensions: Width 2,414 mm; Depth 1,275 mm; Height 2,202 mm

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NIKON METROLOGY, INC.

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Jason Dimon

North East Technical Sales Manager | North Star Imaging
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Rogers, MN 55374
Phone#: 763-200-3432
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The X5000 is a multi-axis high-resolution digital x-ray system for digital radiography and computed tomography inspection of small to large objects with a large format detector. The 5000 Series has innovative cabinet and manipulator designs for easy part loading of even the largest of objects.
The system can accommodate a variety of part shapes, sizes and weights. The steel/lead/steel cabinet has a fit and finish that is unparalleled in the industry and the machine tool technology used in the motion control system ensures a long trouble free life. All systems are manufactured to meet all state and federal radiation safety regulations.

COMPANY PROFILE
North Star Imaging (NSI) manufactures, sells and services state-of-the-art X-ray Imaging systems and CT equipment for industrial use. Our company also designs and develops the software applications used in our systems. NSI provides system solutions from low production or R&D, to high resolution/high production/high energy. Our standard range of products is extremely flexible to meet varied customer requirements
NSI began in the field of industrial X-ray Imaging in 1986 in Minnesota. The Company built its first Digital Radiography system in 1991 and first Computed Tomography system in 2002. From 2006, NSI widened its services and added an Inspection Services Group (ISG) offering need based consulting for anyone needing X-ray and/or computed tomography scanning. Aside from the ISG services, the company also has a Technical Service & Support team that is on call 24/7 to address immediate global customer service needs.
The corporate office is located in the city of Rogers, just outside Minneapolis, Minnesota. In 2010, the company was acquired by ITW which is a global company with 51,000 employees across 56 countries. Since then NSI has opened offices in Paris, France, Irvine, CA, High Wycombe, UK, and Suzhou, China. Worldwide NSI has approximately 100 skilled employees including application specialists, mechanical engineers, software engineers, programmers, level 3 instructors and others.
The global demand for cutting edge X-ray and CT equipment that provides advanced capabilities in an easy and intuitive user interface is what constantly pushes NSI to raise the bar with new and innovative products. The company has the widest product portfolio in the industry which keeps NSI way ahead of its competition. NSI offers seven (7) standard X-ray and CT/micro CT systems including the newly launched CXMM 50, an X-ray system designed specifically for 3D Metrology.
NSI is an ISO 9001:2008 certified company

Nikon Metrology, Inc. (Main office US) Office

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Fax Number: (810) 220-4300

X-ray and CT Inspection for industrial and electronic applications

Nikon Metrology manufactures X-ray and Computed Tomography (CT) inspection systems that get the inside picture of complex industrial parts, by looking into the internal structure. The CT capability is used to qualify and quantify any inner or outer dimension in a smooth, non-destructive process. X-ray electronics inspection systems respond to a growing demand for flexible, detailed and affordable inspection to cope with the demands of ever-smaller electrical components and comply with tighter quality standards.

GE Inspection Technologies

Jim Bednar
Key Account Sales Manager – Radiography
GE Inspection Technologies

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phoenix v|tome|x m
High-end tool for 3D industrial and scientific analysis tasks
Within the phoenix v|tome|x m, GE's unique 300 kV microfocus X-ray tube is for the first time available in a compact CT system for industrial process control as well as for scientific research applications. Beyond down to < 1 µm detail detectability, the system offers industry leading magnification and power at 300 kV.
GE's high dynamic DXR digital detector array and the click & measure|CT automatization functionality make it an efficient 3D tool for industrial inspection and scientific research. Due to its dual|tube configuration, detailed 3D information for an extremely wide sample range is provided: from high resolution nanoCT® of low absorbing samples up to high power µCT applications such as turbine blade inspection.
Reproducible precision 3D metrology with CT
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the phoenix v|tome|x m allows even 3D production control due to its powerful 300 kV tube and high dynamic detector technology for fast CT acquisition, fast velo|CT volume reconstruction and its high automation grade. Applications are, e.g., in light metal casting, electronics assembly, plastics molding as well as in turbine blade inspection:

• Internal defect analysis / 3D quantitative porosity analysis
• Assembly control
• Materials structure analysis

Industrial non-destructive 3D testing

ProCon
Joachim Gudat



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Fax +49 5066 98414 99
www.procon-x-ray.de
Joachim.Gudat@procon-x-ray de

Exact Metrology has partnered with ProCon X-Ray GmbH, a premier German developer of x-ray inspection equipment for industrial applications and university/scientific research, and we are officially its sole representative and seller in the United States. With high resolution focus x-ray technology these systems deliver uncompromised image quality and are widely used for nondestructive testing, failure analysis and process control.

CT-ALPHA

This system meets the most stringent demands in CT X-ray. With the CT-ALPHA, we offer the highest possible flexibility for individual customer requirements.

This space-saving system can be equipped with different X-ray powers, from 160kV for nanometer resolution through 225 kV, 320 Watts to the highest power of 300 kV, 320 Watts.

The variable focus-detector distance permits maximum contrast. As an option, the CT-ALPHA offers the Helix-Scan technique for longer objects as well as for the best avoidance of volume CT artifacts for optimum results in dimensional measurement.

Very large geometric magnifications permit real-time reconstructions in the submicron range. The CT-ALPHA system is ideal for non-destructive testing, materials investigations and, in particular, dimensional measurements of internal structures, undercuts and free form surfaces.

PROCON

Wayne Sumple

From: Wayne Sumple
Sent: Wednesday, January 18, 2017 4:07 PM
To: 'Gudat, Joachim'
Subject: RE: your inquiry

Dear Joachim,
Thank you very much for the fast response. My customer has asked me to look for a machine similar to the Nikon 225. Approximately how much would a CT-ALPHA cost if it were configured similar to the following specs? And how fast could I have it delivered?

Feature	Nikon 225
Approx. Part Size / Area Capability	14" x 17"
Part Weight Limit	50 kg
Smallest 3D detail	
X-ray Source	225 kV
X-ray Spot Size	3-225 µm
X-ray Detector	127-200 µm

From: Gudat, Joachim [mailto:Joachim.Gudat@procon-x-ray.de]
Sent: Wednesday, January 18, 2017 2:57 PM
To: Wayne Sumple
Cc: Kirste, Andreas
Subject: your inquiry

Dear Wayne,
I take the opportunity and answer your mail.
First of all, I thank you for your interest in our products.
The price range of regular ALPHA Systems is from € 300 k up to € 600 k.
X-Ray power and Flat Panel size are the main cost drivers. So it would be pretty important to know the material density and dimensions as well as your target applications, scanning speed, resolution, laboratory or production.
The CT-ALPHA concept allows us to tailor a system configuration very close to your needs: cabinet size, dual tube, multiple detectors, fast scan, high precision scan, offset scan, HELIX scan, stitched scan and so on. We compensate artefacts, geometrical inaccuracies, we reconstruct fast and compact. We offer interfaces to various visualization software. We install, train, and provide first level support through internet.
Our regular delivery time is 19 weeks.
Looking forward to our ongoing communication.
Best regards

Joachim Gudat

PXR PROCON X-RAY

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HRB Hildesheim 203861 StNr 30/213/03554 USt-Ident DE156270754

GE

Wayne Sumple

From: Wayne Sumple
Sent: Wednesday, January 18, 2017 11:51 AM
To: 'Clayton, Mark (GE Global Operations)'
Subject: RE: GE Digital Solutions Contact Follow Up

Mark - I have a budget of $450K. Which GE CT X-ray scanner is the best that I can get for that amount of money. Aerospace parts, jet engine parts, additive manufactured parts, not small parts, but not huge either. Metal, plastic and composite material. Laboratory environment. Will be used to demonstrate CT X-ray scanning technology to manufacturing companies in region.

From: Clayton, Mark (GE Global Operations) [mailto:mark.C.clayton@ge.com]
Sent: Wednesday, January 18, 2017 8:35 AM
To: Wayne Sumple
Subject: RE: GE Digital Solutions Contact Follow Up

Thank you. I forwarded your request to our product specialist. They will reach out as soon as they can.

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, January 17, 2017 4:20 PM
To: Clayton, Mark (GE Global Operations) <mark.C.clayton@ge.com>
Subject: EXT: RE: GE Digital Solutions Contact Follow Up

From: Clayton, Mark (GE Global Operations) [mailto:mark.C.clayton@ge.com]
Sent: Tuesday, January 17, 2017 2:48 PM
To: Wayne Sumple
Subject: GE Digital Solutions Contact Follow Up

Wayne,

I have received your request (referenced below) via the GE Digital Solutions website. I was trying to reach you over the phone, but it was unsuccessful. In order to better understand your needs, could you please answer the questions below?

Upon receipt of your response, I will be able to identify the best person to assist you further and connect you with him/her.

- Could you please tell me how would you like to use this product? Inspect aerospace engine parts
- Could you tell where the end user is located? East Hartford, CT
- Do you have any time frame / deadlines for your project / purchase? March 2017
- Could you please provide us your company's full address and contact number (building, street, city, zip code)? It was on the bottom of my email...CCAT, Inc. 409 Silver Lane, East Hartford, CT. 06118. 860-282-4222.

Thank you in advance for your answers.

Request: I run an Advanced Manufacturing Center and am looking to add an X-ray CT machine. Investigating what I can afford. Please provide the following:
Machine footprint

Machine weight
Approx. Part Size / Area Capability
Part Weight Limit
Smallest 3D detail
X-ray Source
X-ray Spot Size
X-ray Detector
Delivery schedule
Price

Mark Clayton
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NSI

Wayne Sumple

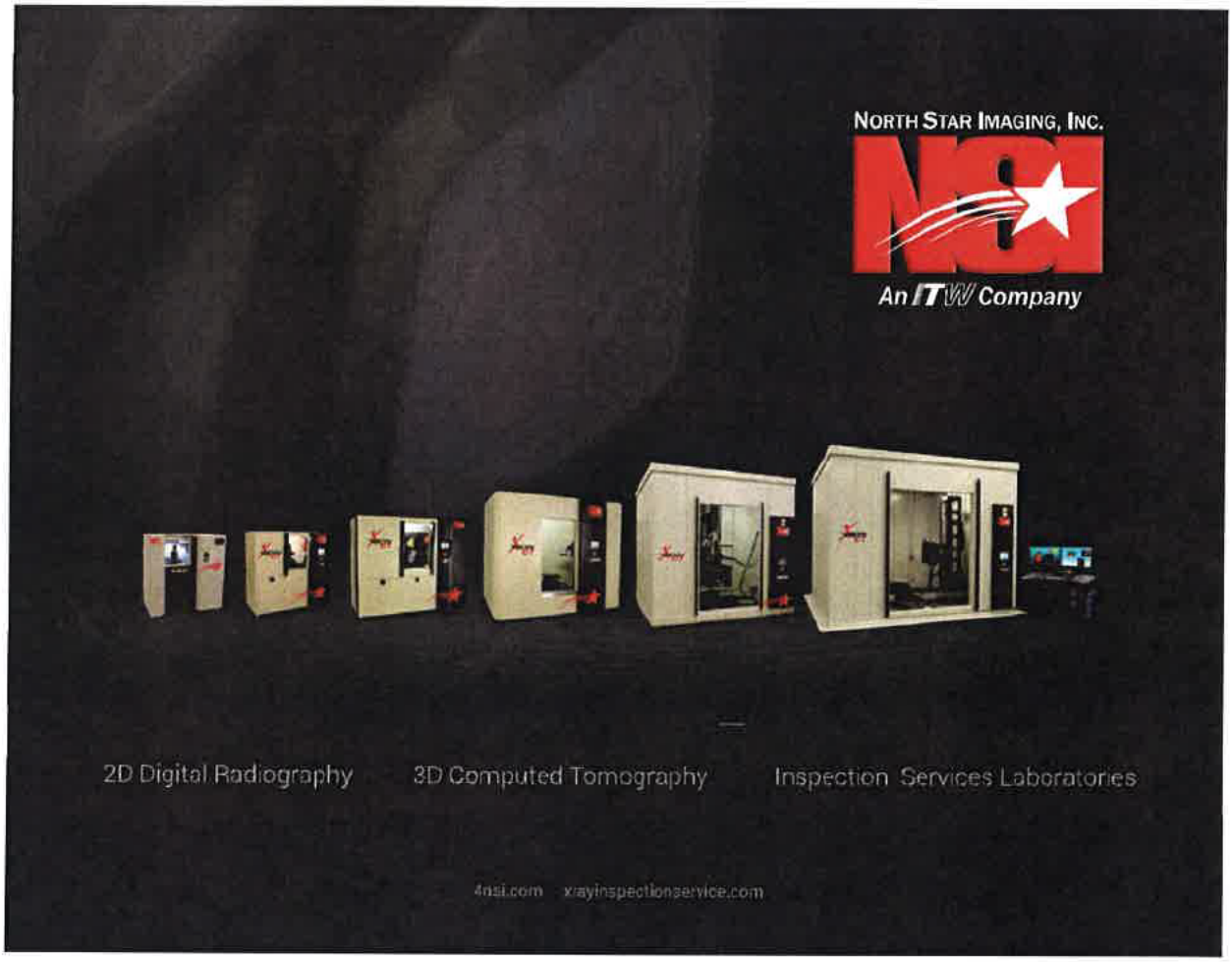
From:	Wayne Sumple
Sent:	Wednesday, January 18, 2017 12:48 PM
To:	'sales@4nsi.com'
Subject:	RE: NSI X-5000

Some additional information on what I'm looking for. I have a budget of $450K. Which NSI CT X-ray scanner is the best that I can get for that amount of money. Aerospace parts, jet engine parts, additive manufactured parts, not small parts, but not huge either. Metal, plastic and composite material. Laboratory environment. Will be used to demonstrate CT X-ray scanning technology to manufacturing companies in region. Is the X5000 within my budget? If so, what is the delivery schedule?

From: Wayne Sumple
Sent: Tuesday, January 17, 2017 4:04 PM
To: 'sales@4nsi.com'
Subject: NSI X-5000

I run an Advance Manufacturing Center in CT. Looking for a budgetary estimate for a X-ray CT scanner. The X-5000 looks like the level of machine I may be interested in. What is the cost range of the X-5000?

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
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East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us



Celebrating over 28 years of Innovation



North Star Imaging was founded in 1986 by Ken Ness as a Non destructive Testing (NDT) equipment representative and accessory supplier based in the St. Paul, MN area. The firm specialized in industrial X-ray testing. NSI served the upper Midwestern states of Minnesota, North Dakota, South Dakota, Wisconsin and Iowa.

In 1991, North Star Imaging manufactured their first Digital Radiography system. Throughout the 1990's, NSI continued to expand their equipment representative and accessory supplier business across the USA. In 2002, NSI manufactured their first Computed Tomography system.

In 2004, NSI outgrew their St. Paul, MN site and moved into a brand new facility in Rogers, MN. In 2006, the company formed their Inspection Services Group (ISG), which provides need based consulting services for anyone needing X-ray and/or Computed Tomography scanning. The company's X-ray and Computed Tomography systems and services business continued to flourish and in 2009 they expanded their Rogers complex by 33% to keep up with demand.

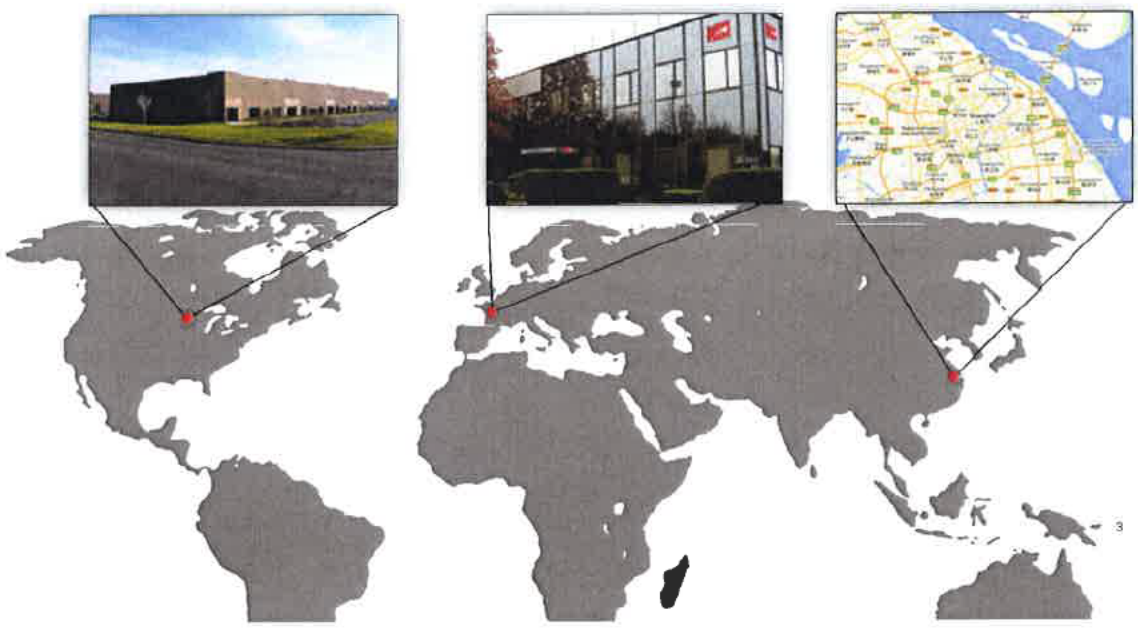
In late 2010, North Star Imaging, Inc. was acquired by Illinois Tool Works (ITW) and became part of ITW's Test and Measurement segment. ITW is a leading diversified manufacturing company with over 100 years of history and over 800 individual business units.

In 2012, with demand continuing to increase both nationally and internationally, North Star Imaging nearly doubled the square footage of their facility in Rogers, MN. The same year, NSI added a physical location in Paris, France.

In 2013, North Star Imaging, Inc. was awarded with ISO 9001:2008 certification as a result of significant changes and improvements to their Quality System to increase efficiency, reduce errors and enrich customer satisfaction.

Truly a Global Company

Today, North Star Imaging is one of the leading manufacturers of 2D Digital Radiography and 3D Computed Tomography systems in the World. Additionally, each worldwide location houses state of the art equipment for demonstration and need based X-ray/CT Inspection Services. No matter your location, NSI has local employees ready to help evaluate your needs, explain the technology and provide thorough training upon installation. Furthermore, each NSI location employs dedicated service personnel, so local help is never more than a phone call away.



What is Digital Radiography?

Digital Radiography, or DR for short, is a 2D X-ray inspection method using a digital X-ray detector in place of X-ray film. DR allows for real-time X-ray inspection of your part or object - no more waiting for film to process! You can make scan adjustments on the fly and also apply digital image enhancements quickly and easily – saving you time.

Digital Radiography detectors are designed to be used time after time, helping to eliminate the cost of consumables – saving you money.

North Star Imaging's Digital Radiography systems are designed to make your business and your team as efficient as possible. Programmed and repeatable inspection sequences, easy to use software and superior image quality lets you focus more monitoring your product quality while also increasing throughput.



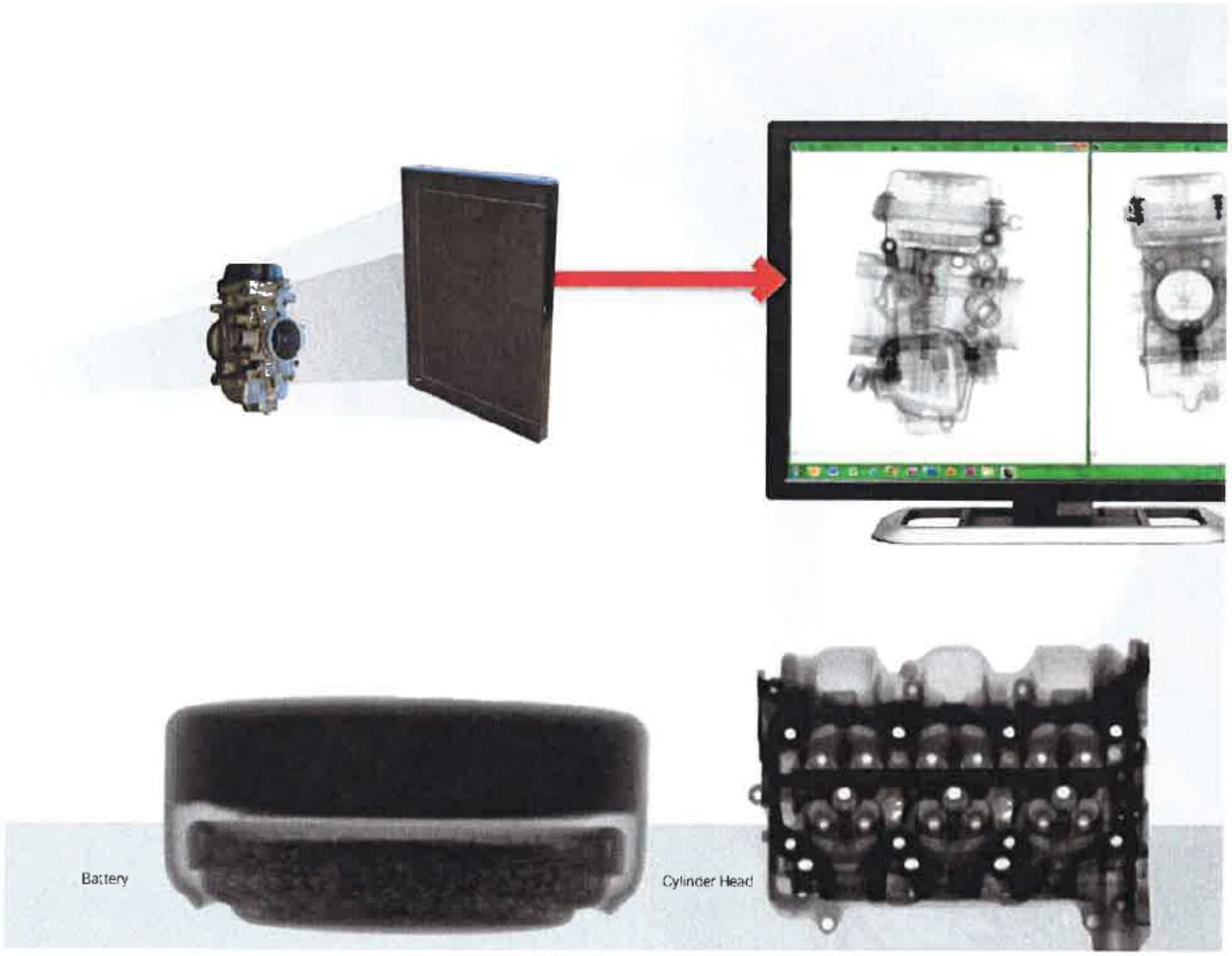


Flashlight

We offer
DR Training
nsi.com/training



Capacitor



Battery

Cylinder Head

What is Computed Tomography

3D Computed Tomography (CT) is a nondestructive scanning technology that allows you to view and inspect the external and internal structures of an object in 3D space. Computed Tomography works by taking hundreds or thousands of 2D Digital Radiography projections around a 360 degree rotation of an object. Proprietary algorithms are then used to reconstruct the 2D projections into a 3D CT volume, which will allow you to view and slice the part at any angle.

3D CT virtually eliminates interpretation errors and opens the door to many capabilities that are not available with any other technology.

CT capabilities include:

- Internal and external measurements
- 3D CAD comparisons
- Void analysis
- Surface reconstructions for reverse engineering
- Finite Element Analysis
- And much more

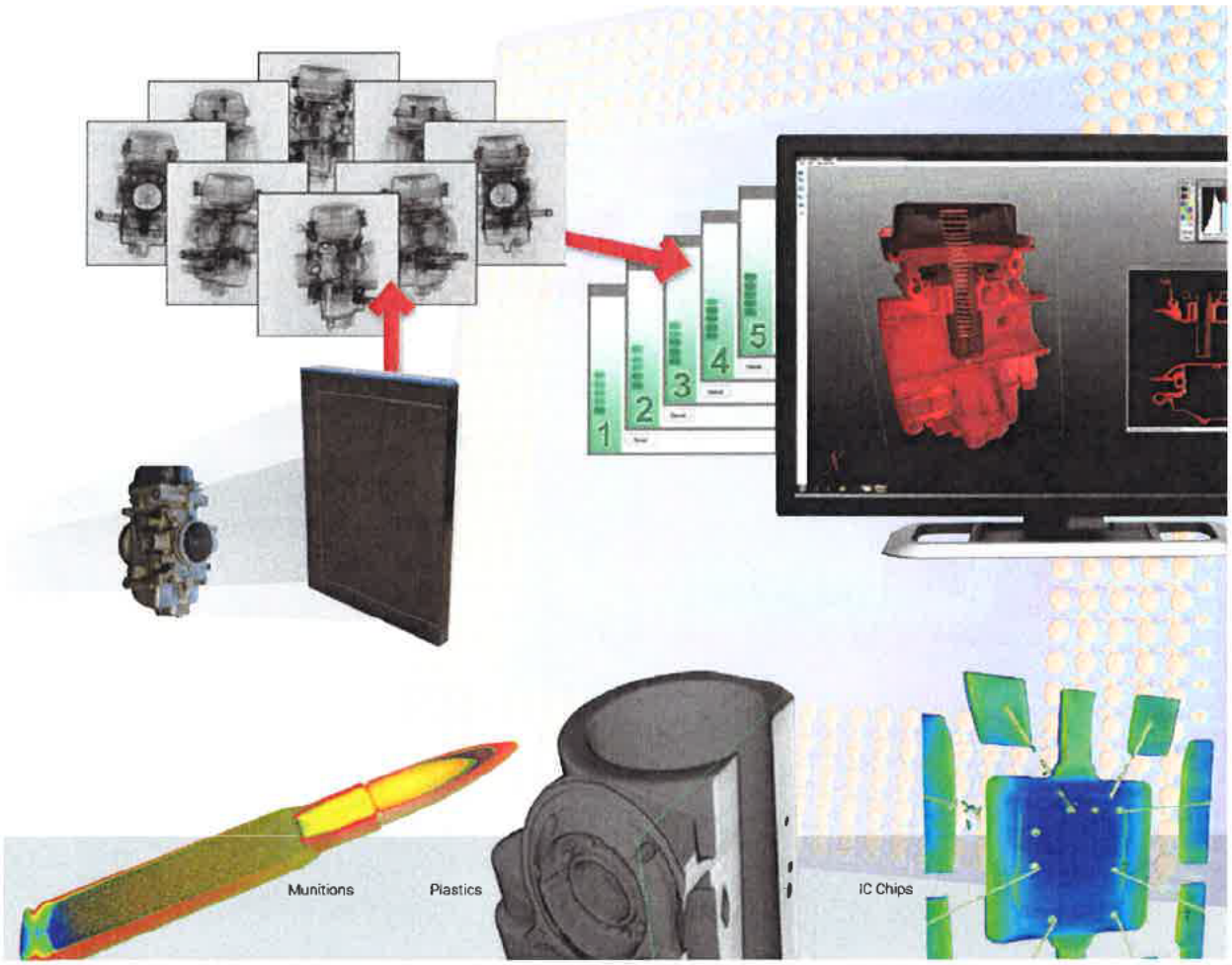


North Star Imaging Computed Tomography systems are the easiest to use in the industry. NSI's efX-CT software uses five simple steps to guide you through the CT scanning process and have you inspecting your product in no time – increasing your quality and efficiency.

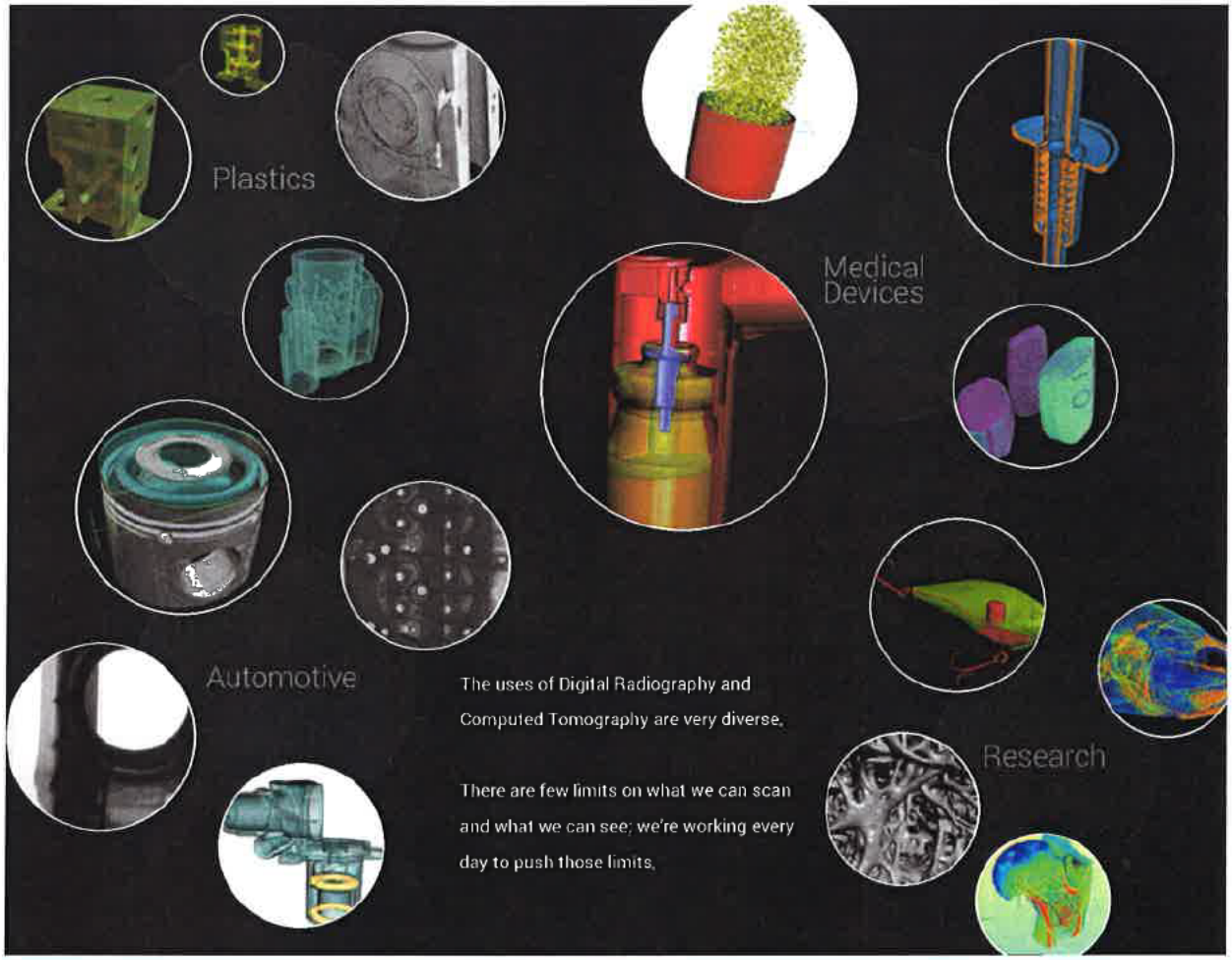
We offer
CT Training
4nsi.com/training



Composites


1
2
3
4
5
Munitions
Plastics
IC Chips


Applications & Markets
Aerospace
Castings
Electronics
Museum



Systems

IMAGIX

Affordability and Simplicity

The ImagiX is North Star Imaging's most compact system. The system can be configured as a desktop unit or a freestanding system. The generous scanning envelope can handle products up to 5" (12cm) in size making it a great choice for laboratories, small electronics and R&D applications.



SYSTEM CAPABILITIES
- Advanced 2D X-ray inspection
- 2D CT Slice reconstruction
- CT volume reconstruction for 3D inspection
- 3D internal and external surface scanning
- 5" (12cm) diameter x 5" (12cm) tall nominal part envelope

CT SOFTWARE
- Comprehensive acquisition, processing and archival program with user-friendly interface
- Automated CT calibration software
- Very fast reconstruction software with option for Graphic Card based algorithm
- Local CT and Limited angle CT reconstruction capabilities
- 3D visualization module with real-time volume rendering, density segmentation, & high performance measurements
- 3D surface model export for CAD compatibility
- Multiple image formats input/output

X-RAY SOURCE
- Micro-focus X-ray tube
- Voltage Range: 10kV – 160 kV
- Focal Spot Size : < 5 microns
- Maximum system resolution: better than 5 microns

X-RAY DETECTOR
- Digital X-ray detector types: Flat Panel or Image Intensifier
- Detector Size: up to 8" x 10" (20cm x 25cm)

MANIPULATOR
- Maximum Sample Weight: 10 lbs (4.5kg)
- 4 Axis of Scan Travel (customization available) : Focal Distance : 24" (61cm) Vertical : 7.5" (19cm) (Exact measurements vary depending on tube, detector and optical configuration)
- Rotational stage with high precision
- Optional motion controlled Z axis

CABINET
- External Dimension: 57" Wide, 30" Deep, 58" Tall (144cm Wide, 76cm Deep, 147cm Tall)
- Cabinet Features: Interior lighting, sliding access door, leaded glass viewing window
- Meets or exceeds 21 CFR 1020.40 and EN 61010-2-091 2012
- System includes one ergonomic desk and chair

X25

Metrology and Submicron Resolution

The X25 is quite possibly the most conveniently sized system on the market. The system offers all of the same creature features as the larger systems while still maintaining the ability to fit through a standard interior door. The X25 is well suited for small to medium sized objects as well as submicron inspection.



SYSTEM CAPABILITIES
- Ideal for submicron X-ray and CT applications
- X-ray Energies from 10kV-160kV
- Geometric Magnification: Up to 4000x
- Overall Maximum System Resolution: 0.5 micron
- 6" (16cm) diameter x 9" (22cm) tall nominal part envelope

CT SOFTWARE
- Comprehensive acquisition, processing and archival program with user-friendly interface
- High performance image processing and measurement functions
- Non-proprietary multiple image format output/input. DICONDE compliant
- Automated program functions for fast analysis
- Multiple window interface for display of raw image, processed image, density data, etc.
- Computed Tomography acquisition module
- Optional 3D Computed Tomography calibration, reconstruction and visualization
- Optional 4D Computed Tomography

X-RAY SOURCE
- Voltage Range: 10kV-160kV
- Minimum Focal Spot Size: 0.5 micron
- X-ray Tube Types: Nano-focus, Micro-focus, Open or Sealed, Transmission

X-RAY DETECTOR
- Digital X-ray Detector Types: Flat Panel (DDA)
- Grade Options: Standard or CT Premium, 14bit or 16bit
- Detector Size: Up to 9" x 11" (22cm x 27cm)
- Characterized to ASTM E2597 Standard

MANIPULATOR
- Maximum Sample Weight: 25lbs (11kg)
- Scan Travel (customization available): Vertical = 9" (22cm), Horizontal = 6" (15cm), Z axis (source to detector) = 39.5" (100cm), Rotation = 360° continuous (*Exact measurements vary depending on tube, detector and optional configurations)
- Part Manipulation Control:
  - All drives variable speed joystick controlled
  - Each axis is independently controlled
- Control-X: Programmable CNC controlled automated scanning with automatic image processing and archiving capabilities

CABINET
- External Dimensions: 73" Wide, 28" Deep, 71" Tall (185cm Wide, 96cm Deep, 180cm Tall)
- Transportable through standard 36" (92cm) wide doors (removable light curtains)
- Cabinet Features: Cable access port with cover, interior lighting, powered sliding access door(s), leaded glass viewing window, safety light curtains
- Steel/lead/steel construction
- Meets or exceeds 21 CFR 1020.40 and EN 61010-2-091 2012
- Touch screen operation
- Vibration isolation system
- System includes one ergonomic desk and chair

X50

Powerful and Ergonomic

The X50 is one of NSI's most popular models for electronics, aerospace components and medical devices. It offers an excellent balance of power and space sensitivity. The system can handle products up to 12" (30cm) in size while seated nicely in your failure analysis lab or busy production line.



SYSTEM CAPABILITIES
- X-ray Energies from 10kV-240kV
- Geometric Magnification: Up to 4000x
- Overall Maximum System Resolution: better than 1µm
- Meets ASTM E2597 Standard
- 8" (20cm) diameter x 12" (30cm) tall nominal part envelope

CT SOFTWARE
- Comprehensive acquisition, processing and archival program with user-friendly interface
- High performance image processing and measurement functions
- Non-proprietary multiple image format output/input. DICONDE compliant
- Automated program functions for fast analysis
- Multiple window interface for display of raw image, processed image, density data, etc.
- Computed Tomography acquisition module
- Optional 3D Computed Tomography calibration, reconstruction and visualization
- Optional 4D Computed Tomography
- Available with vorteX

X-RAY SOURCE
- Voltage Range: 10kV-240kV
- Minimum Focal Spot Size: <1µm
- X-ray Tube Types: Nano-focus, Micro-focus, Mini-focus, Open or Sealed, Transmission or Directional or Dual Head

X-RAY DETECTOR
- Digital X-ray Detector Types: Flat Panel (DDA), Linear Diode Array (LDA), Image Intensifier
- Grade Options: Standard or CT Premium, 14bit or 16bit
- Detector Size: Up to 16" x 16" (40cm x 40cm)

MANIPULATOR
- Maximum Sample Weight: 25lbs (11kg)
- Scan Travel (customization available): Vertical = 12" (30cm), Horizontal = 12" (30cm), Z axis (source to detector) = 53" (134cm), Tilt = +20°/-10°, Rotation = 360° continuous (*Exact measurements vary depending on tube, detector and optional configurations)
- Part Manipulation Control:
  - All drives variable speed joystick controlled
  - Each axis is independently controlled
- Control X: Programmable CNC controlled automated scanning with automatic image processing and archiving capabilities

CABINET
- External Dimensions: 67" Wide, 52" Deep, 79" Tall (221cm Wide, 132cm Deep, 201cm Tall)
- Cabinet Features: Cable access port with cover, interior lighting, powered sliding access door(s), leaded glass viewing window, safety light curtains
- Steel/lead/steel construction
- Meets or exceeds 21 CFR 1020.40 and EN 61010-2-091 2012
- Touch screen operation
- System includes one ergonomic desk and chair

X5000

Universal and Flexible

The X5000 is the most versatile system offered by North Star Imaging. The system boasts a large scanning envelop and excellent ergonomics for loading sizable objects while still maintaining the sensitivity to inspect even the smallest of items.



SYSTEM CAPABILITIES
- X-ray Energies from 10kV-450kV
- Geometric Magnification: Greater than 2000x
- Overall Maximum System Resolution: better than 500nm
- Meets ASTM E2597 Standard
- 32" (81cm) diameter x 48" (121cm) tall nominal part envelope

CT SOFTWARE
- Comprehensive acquisition, processing and archival program with user-friendly interface
- High performance image processing and measurement functions
- Non-proprietary multiple image format output/input. DICONDE compliant
- Automated program functions for fast analysis
- Multiple window interface for display of raw image, processed image, density data, etc.
- Computed Tomography acquisition module
- Optional 3D Computed Tomography calibration, reconstruction and visualization
- Optional 4D Computed Tomography
- Available with vorteX, subpiX, and mosaiX

X-RAY SOURCE
- Voltage Range: 10kV-450kV
- Minimum Focal Spot Size: < 500nm
- X-ray Tube Types: Nano-focus, Micro-focus, Mini-focus, Open or Sealed Transmission or Directional or Dual Head
- Optional Dual Tube configuration

X-RAY DETECTOR
- Digital X-ray Detector Types: Flat Panel (DDA), Linear Diode Array (LDA), image Intensifier
- Grade Options: Standard or CT Premium, 14bit or 16bit
- Detector Size: Up to 16" x 16" (40cm x 40cm)

MANIPULATOR
- Maximum Sample Weight: 250lbs (113kg) (400lbs (181kg) optional)
- Scan Travel (customization available): Vertical = 45" (121cm), Horizontal = 33" (83cm), Z axis (source to detector) = 48" (121cm), Tilt = +20°/-15°, Rotation (optional +/-30°) = 360° continuous (*Exact measurements vary depending on tube, detector and optional configurations)
- Motorized detector travel for variable focal distance adjustment
- Part Manipulation Control:
  - All drives variable speed joystick controlled
  - Each axis is independently controlled
- NSI CNC motion control software for automated scanning with automatic image processing and archiving capabilities
- Option: Rotational stage indexes outside of the cabinet for ergonomic part loading/unloading

CABINET
- External Dimensions:
  - 240kV model: 107" Wide x 60" Deep x 92" Tall (271cm Wide, 203cm Deep, 233cm Tall)
  - 450kV model: 126" Wide x 91" Deep x 102" Tall (320cm Wide, 231cm Deep, 259cm Tall)
- Cabinet Features: Cable access port with cover, interior lighting, powered sliding access door(s), leaded glass viewing window (240kV model only), internal camera monitoring system, safety light curtains
- Steel/lead/steel construction
- Meets or exceeds 21 CFR 1020.40 and EN 61010-2-091 2012
- Touch screen operation
- Includes one ergonomic desk and chair

X6000

Automated and Versatile

The X6000 is specifically designed for castings and other large and heavy products. The system features a programmable C-arm manipulator for automated and repeatable inspection sequences. The massive access door and external indexing rotational stage make loading quick and easy.



SYSTEM CAPABILITIES
- X-ray Energies from 10kV-225kV
- Shielded to 160kV or 225kV
- Geometric Magnification: Greater than 2000x
- Capable of scanning large components
- 48" (121cm) diameter x 60" (152cm) tall nominal part envelope

CT SOFTWARE
- Comprehensive acquisition, processing and archival program with user-friendly interface
- High performance image processing and measurement functions
- Non-proprietary multiple image format output/input. DICONDE compliant
- Automated program functions for fast analysis
- Multiple window interfaces for display of raw image, processed image, density data, etc.
- Optional 2D, 3D & 4D Computed Tomography acquisition module

X-RAY SOURCE
- Voltage Range: 10kV-225kV
- X-ray Tube Types: Transmission or Directional Micro-focus, Mini-focus
- Optional Microfocus Rod Anode or Seeker Tube Design

X-RAY DETECTOR
- Digital X-ray Detector Types: Flat Panel (DDA)
- Flat Panel Detector Size: Up to 16" x 16" (40cm x 40cm)

MANIPULATOR
- Maximum Sample Weight: 400lbs (181kg)
- Scan Travel: Vertical (Y axis) = 70" (177cm), Horizontal (X-axis) = 45" (121cm), Lateral (Z axis) = 45" (121cm), Source to Detector = Max 48" (121cm), C-arm Rotation = +/- 120°, Stage Rotation = 360° continuous (*Exact measurements vary depending on tube, detector and options configurations)
- Motorized detector travel for variable focal distance adjustment
- Part Manipulation Control:
  - All drives variable speed joystick controlled
  - Each axis is independently controlled
- Rotational stage indexes outside of the cabinet for easy part loading/unloading
- Options:
  - eFX CNC programmable CNC controlled automated scanning with automatic image processing and archiving capabilities
  - Lateral detector motion
  - Additional Stage for large component scanning

CABINET
- External Dimensions: 139" Wide x 120" Deep x 132" Tall (353cm Wide, 304cm Deep, 335cm Tall) (varies depending on shielding)
- Cabinet Features: Cable access ports with cover, interior lighting, 59" x 90" (152cm x 228cm) powered bi-parting sliding access door, two 15" x 24" (38cm x 60cm) leaded glass viewing windows, internal camera monitoring system, safety light curtains
- Steel/lead/steel construction
- Meets or exceeds 21 CFR 1020.40 and EN 61010-2-091 2012
- Touch screen operation
- Includes one ergonomic desk and chair

Systems

X7000

Modular and Robust

The X7000 is North Star Imaging's largest standard system. The optional independent horizontal (x-axis) travel of the tube and detector allow for unparalleled inspection capabilities of an elongated object. The system is great for composites, castings, pipes, tubes, welds and similar parts.



SYSTEM CAPABILITIES
- X-ray Energies from 10kV-450kV
- Geometric Magnification Greater than 2000x
- Capable of scanning large components
- 60" (152cm) diameter x 60" (152cm) tall nominal part envelope

CT SOFTWARE
- Comprehensive acquisition, processing and archival program with user-friendly interface
- High performance image processing and measurement functions
- Non-proprietary multiple image format output/input. DICONDE compliant
- Automated program functions for fast analysis
- Multiple window interface for display of raw image, processed image, density data, etc.
- Computed Tomography acquisition module
- Optional 3D & 4D Computed Tomography acquisition module
- Available with vorteX, subpiX and mosaiX

X-RAY SOURCE
- Voltage Range: 10kV-450kV
- X-ray Tube Types: Transmission or Directional Micro-focus, Mini focus
- Optional dual tube configuration

X-RAY DETECTOR
- Digital X-ray Detector Types: Flat Panel (DDA), Linear Diode Array (LDA)
- Flat Panel Detector Size: Up to 16" x 16" (40cm x 40cm)
- LDA size up to 36" (91cm)
- Optional dual detector configuration

MANIPULATOR
- Maximum Sample Weight: 800lbs (362kg)
- Scan Travel: Vertical = 60" (152cm), Horizontal = 120" (305cm), Z axis (source to detector) = 80" (203cm), Tilt = +30°/-30°, Rotation = 360° continuous (Exact measurements vary depending on tube, detector and optional configurations)
- Motorized detector travel for variable focal distance adjustment
- Rotational stage indexes outside of the cabinet for easy part loading/unloading
- Part Manipulation Control:
  - All drives variable speed joystick controlled
  - Each axis is independently controlled
- Options:
  - Control X programmable GUI controlled automated scanning with automatic image processing and archiving capabilities
  - External detector motion
  - Dual tubes and/or dual detectors
  - Additional K-axis for long component scanning

CABINET
- External Dimensions: 156" Wide x 156" Deep x 125" Tall (396cm Wide, 396cm Deep, 317cm Tall) (varies depending on shielding)
- Cabinet Features: Cable access ports with covers, interior lighting, powered bi-parting sliding access door (60" x 90" (172cm x 228cm) door opening), internal camera monitoring system, safety light curtains
- Steel/lead/steel construction
- Meets or exceeds 21 CFR 1020.40 and EN 61010-2-091 2012
- Touch screen operation
- Includes one ergonomic desk and chair

Upgrades

Film to Real Time Digital Radiography

Benefits

- Less consumables = Reduced Costs
- Real time evaluation capability = Increase Productivity
- Higher resolution results = Increased Inspection Capabilities/Quality Control

Typical package includes:

- New digital flat panel X-ray detector (*NSI will help you choose the best detector for your specific application)
- New software
- New real time workstation



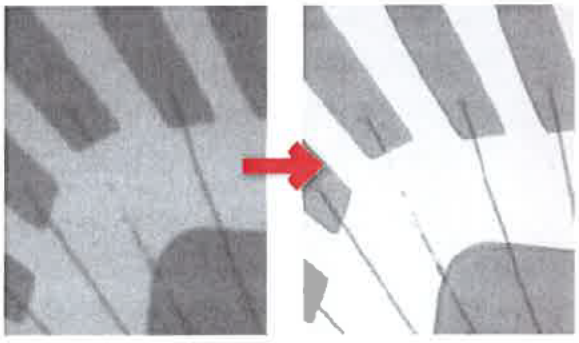
Real Time Digital Radiography Performance Upgrade

Benefits

- Updated software = Increased Productivity and Higher Resolution Results
- Higher resolution results = Increased Inspection Capabilities/Quality Control

Typical package includes:

- New digital flat panel X-ray detector
- New X-ray tube (mini, micro, nano) (90kV to 450kV)
- New DR acquisition and processing software



4nsi.com

Upgrades

2D Real Time Digital Radiography to 3D Computed Tomography Upgrade

Benefits

- Full 3D CT capabilities without the cost of a new CT system
- 3D Metrology and Reverse Engineering capabilities
- Complete 3D inspection = Increased Inspection Quality

Typical package includes:

- efX-CT software – includes calibration, reconstruction and
- 3D visualization
- CT workstation with GPU reconstruction capabilities
- CT acquisition software
- High precision rotational stage
- New X-ray tube and/or X-ray detector optional

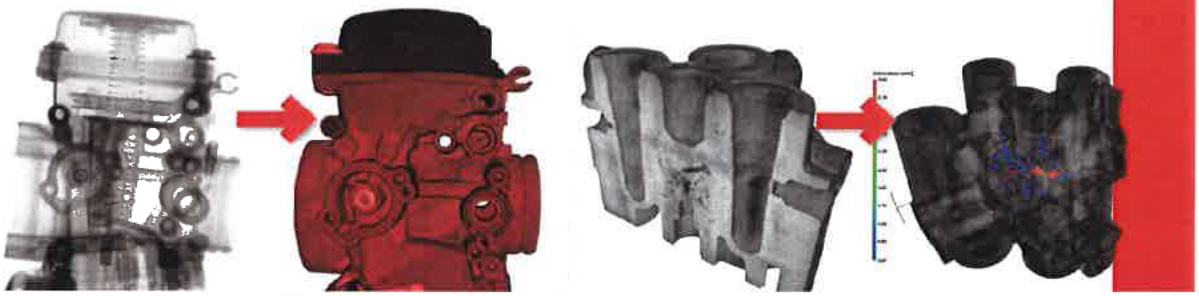
3D Computed Tomography Performance Upgrade

Benefits

- Increased reconstruction speed (up to 50x faster) = Increased Productivity
- Extremely easy to use CT software = Increased Productivity
- Higher resolution results with less noise = Increased Inspection Capabilities/Quality Control

Typical package includes:

- efX-CT Software - includes calibration, reconstruction and 3D visualization
- CT workstation with GPU reconstruction capabilities
- Advanced 3D Analysis Capabilities - Geomagic/VGStudio MAX/ Anizo...
- New X-ray tube and/or X-ray detector optional



Software

efX DR is a new generation DR software developed entirely by North Star Imaging. Exclusively featuring:

- High performance image processing and measurement functions using GPU
- Automatic creation of customizable Technique sheet for operator records
- Easy CT acquisitions: continuous or step, Fan Beam, Cone Beam, voxleX
- Enhanced detector capabilities: larger size (mosaiX) or improved resolution (subpixX)
- Seamless integration with efX-CT software
- DICONDE compliant
- Motion programming and Automated barcode triggered program execution



efX-DR IMAGE PROCESSING SOFTWARE

- Windows 7 Based (XP supported)
- Non-proprietary image storage format (TIFF)
- High performance image processing and measurement functions using GPU
- Live Averaging
- Live Histogram with multiple color tables
- Live line Profile
- Live Rotation between portrait and landscape modes
- Live Measurements
- Live image offset and multiple gain calibration, defective pixel correction
- Live signal to noise and live contrast to noise measurement
- Filters to improve image quality
- Automatic creation of customizable Technique sheet for operator records
- Capture video into AVI files
- Supports digital flat panel detectors, LDAs and digital/analog cameras at 8, 10, 12 and 16 bits
- Supports X-ray sources
- Read and store images in: TIFF 32 bit / 16 bit / 8bit, BMP, JPEG, DICONDE
- Seamless integration with efX-CT software
- Optional CND motion control and teach based programming
- Support for production mode with barcode input and automated system operation

OPTIONAL DETECTOR QUALIFICATION MODULE:

- Designed to meet ASTM E94, E747 and ISO 19232 Rev B. specifications
- Simplifies reporting process to meet above guidelines
- Simple SNR calculation

efX-DR ACQUISITION WORKSTATION:

- Windows® 7 x64 Based (XP supported)
- Quad Core Xeon Processor
- 8 GB RAM
- 1 TB SATA High Speed Hard Drive
- DVD+/-RW Drive
- 10/100/1000 network interface card
- 30" high resolution flat panel monitor

efX-CT is the Easiest, Fastest and Most Complete Industrial CT Software on the Market. Exclusively featuring:

- GPU accelerated CT reconstruction module
- Automatic Parallelization for systems with multiple CPUs and GPUs
- 5 step guided wizard for easy CT reconstruction
- Intuitive interface and OpenGL based 3D volume rendering
- Unique geometry and dimensional calibration, exceeds system/mechanical precision
- Non proprietary data formats, handles broad range of input formats



efX-CT PACKAGE INCLUDES:
- Full software license
- High-end, multi processor CT reconstruction and 3D visualization workstation
- Complete user guide, documentation and calibration tools

efX-CT SOFTWARE INCLUDES:
- User friendly volume viewer
- 2D Viewer, efX-view for X-ray images and CT slices
- CT slices stack import
- Compatible 2D formats include BMP, TIFF, DICOM, DICONDE and most standard formats
- Automated focal spot drift compensation
- Volume format conversion capabilities
- Advanced CT mode for full access to all CT reconstruction parameters
- Filters on projections for noise and artefact correction
- Unique ultra-fast 3D preview of CT reconstructions
- Region of Interest CT reconstruction
- Job list – process all CT reconstructions in a queue
- Interactive density segmentation
- Real time multi-slicing (up to six planes) with measurements
- Volume resizing, cropping and reorienting
- Imperial and Metric measurement systems
- Beam hardening correction
- Surface extraction with export to STL, OBJ, DXF, WRL, PLY, etc
- No limitation in reconstruction size and resolution
- Easy screen capture, video recording and exporting of x/y/z slices
- Production mode with automated reconstruction

efX-CT IS WINDOWS 8.1 BASED (7 AND XP SUPPORTED)

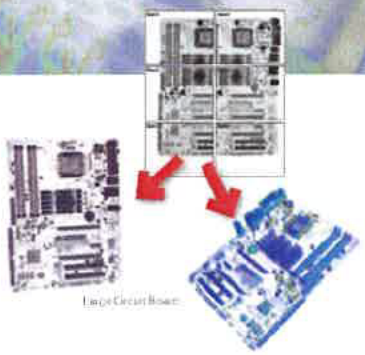
CT RECONSTRUCTION ALGORITHMS AVAILABLE IN **efX-CT**:
- Cone-Beam (FDK) conventional and vorteX
- Fan Beam

OPTIONS INCLUDE:
- GPU acceleration package with NVIDIA supercomputer hardware
- High capacity high speed storage with hardware RAID support
- Geomagic, VGStudioMAX and/or Avizo software packages for more advanced CT processing

Software Innovations

mosaiX

mosaiX utilizes a redesigned manipulator and a proprietary algorithm to stitch multiple images forming one seamless image with a much larger field of view. With **mosaiX** the effective imaging field of view is no longer limited by the detector panel size, and can now be expanded as large as the cabinet will accommodate.



Large Circuit Board

subpiX

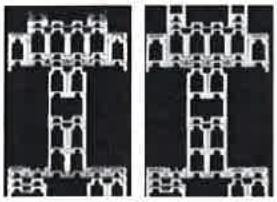
subpiX uses a redesigned motion system and a proprietary algorithm to generate images with improved resolution that is typically double of what the detector alone is capable of achieving.



Line Pair Gauge

vorteX

vorteX is a computed tomography technique that allows you to scan elongated objects that cannot fit into a single exposure, thus enabling higher magnification and increased resolution. The other major benefit of **vorteX** is the elimination of cone beam artefacts, which are usually seen at the top and bottom of conventional CT scans that use short focal distances or wide cone angles.



Conventional CT | vorteX (cone beam artifacts reduced)

High Performance CT Workstation

The NSI **4G Ultimate** CT reconstruction workstation is the most powerful workstation to date. It features four NVIDIA Quadro K6000 GPUs running in parallel and 256GB of RAM. This doubles GPU RAM and quadruples the System RAM from the previous generation **4G eXtreme**. CT reconstruction times are 5x to 50x faster than any other CT workstation available today.



4D CT

4D X-ray Computed Tomography allows users to reconstruct a complete 3D CT model that includes time and motion, creating a truly dynamic volumetric dataset. Because this is an X-ray Computed Tomography process, both the internal and external structures of an object are obtained. This new and exciting technology makes it possible to study form, structure and now – function.



xrayinspectionservice.com

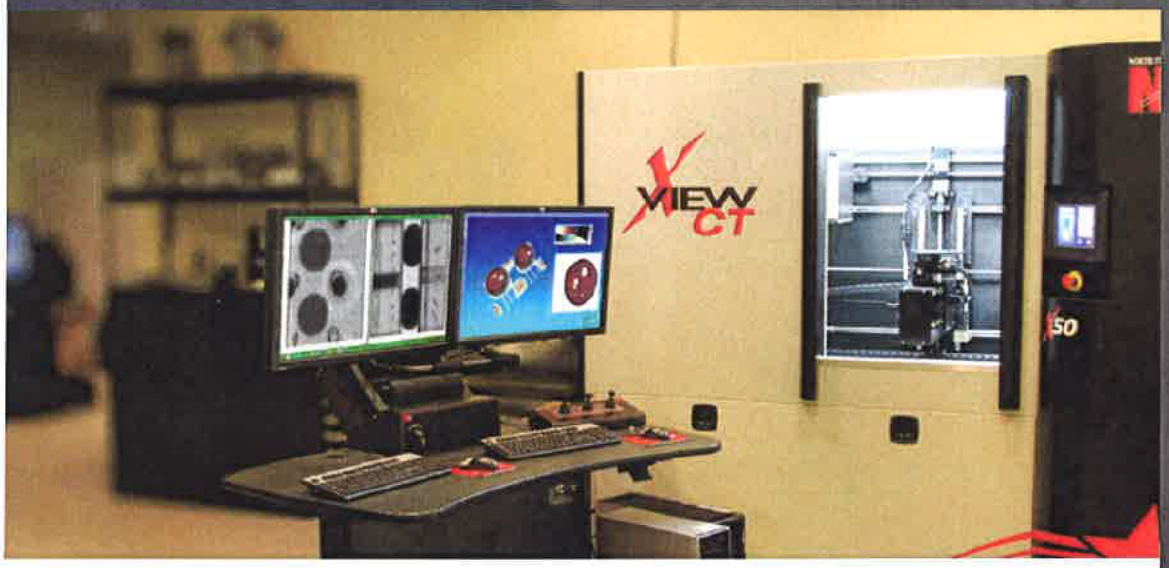
ISG X-VIEW

The Most Advanced X-ray Inspection Laboratory in North America

North Star Imaging's Inspection Services Group provides real-time X-ray inspection and CT scanning services to virtually anyone needing to verify the integrity of internal components. The "inside view" that our team produces is unparalleled in the industry and is the foundation for all of the services that we provide. When you need high accuracy examination of internal components or wish to inspect the dimensions of any assembly, call on NSI's Inspection Services Group. No other company offers a broader range of services or the depth of nondestructive testing expertise.

22 Electronics | Castings | Automotive | Aerospace | Medical Devices

Inspection Services Group



Applications Include:

- Failure Analysis
- Research and Development (R&D)
- Product Quality Compliance/Screening
- Internal and External Measurements
- Reverse Engineering
- Density Analysis
- Product Contamination
- 3D Metrology
- Museum Artifact Digitization
- Weld Quality Analysis
- Assembly Verification

Inspection Services Group

xrayinspectionservice.com

1. Let's talk

Talk with our experienced team to help develop a plan of action.

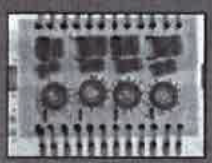




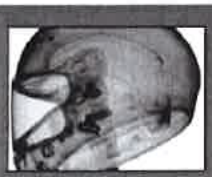
2. Send us the sample

Whether it's 1 or 1000, small or extra-large - we can handle it.


Sports Equipment


Electronics


Castings


Safety Devices


Sensors

Inspection Services Group



3. We scan it

We have the Largest Lab in North America and facilities throughout the world - We'll get it done!

4. Deliver the data

Visit our facility, join us for a web meeting or request a USB drive




Plastics


Circuit Boards


Assemblies


Rubber


Power Equipment

Maintenance Services

Our goal is to help you avoid interruptions by keeping your system state-of-the-art and running smoothly.



Unlimited phone and remote access support

List of recommendations generated upon evaluation of system

Discounts on service labor and parts.

All service is performed by factory trained and authorized system specialist.



Maintenance Services

Thorough 12 Point Inspection..

1. Clean and adjust X-ray Tubes, replace o-rings and adjust Controllers to manufacturers specs
2. Clean, inspect, set, compression and reapply dielectric grease
3. Vacuum system check and change oil if applicable
4. Clean cooler and test safety switches
5. Clean and verify adjustments on the HT generators to preserve tube filament life
6. Clean, inspect and lubricate manipulator
7. Test and Adjust shutter
8. Test and adjust Safety Interlocks and Safety Lamps
9. Test power and supplies and adjust to factory specifications
10. Inspect for proper cable drape
11. Install software updates
12. Perform a Radiation Safety Survey with documentation



We offer replacement X-ray tubes, detectors and additional components

What can NSI do for you?

NORTH STAR IMAGING, INC.
An ITW Company

Corporate Office:
North Star Imaging, Inc.
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Rogers, Minnesota 55374 USA
Phone: (763) 463-5650
Toll Free: 1-800-635-8392
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13 rue de la Perdrix
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Fax: +33 (0) 1 48 17 02 09
4nsi.eu

North Star Imaging Worldwide
NSI has representative professionals located throughout Europe, Asia and other countries throughout the world.
Contact us for details.

4nsi.com

xrayinspectionservice.com

ISO 9001:2008

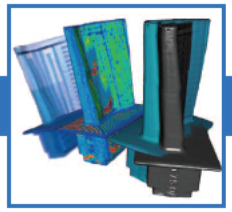
NSI Quality Policy:
The people of ITW North Star Imaging are committed to understanding and achieving our customer's expectations and providing world class imaging products and services driven by a culture of continual improvement.

GE
Inspection Technologies

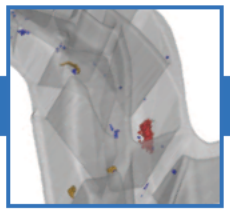
First industrial microCT system with advanced scatter|correct technology

phoenix v|tome|x m

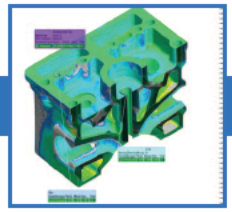
Powerful versatile X-ray microfocus CT system for 3D metrology and analysis with up to 300 kV / 500 W



3D analyses of a scanned turbine blade.



Automatic pore volume analysis in an aluminum casting.



3D measurements and nominal-actual CAD comparison on an aluminum cylinder head.

Key features & benefits

- scatter|correct: highly improved CT quality level compared to conventional mikrofocus cone beam CT
- Industry leading magnification and power at 300 kV for high absorbing samples on a wide application range
- Unique dual|tube configuration for high power µCT as well as high resolution nanoCT®
- First compact 300 kV microfocus CT system with < 1 µm detail detectability
- metrology|edition for precision measurements with up to 4+L/100 µm referring to VDI 2630 guideline*
- Max. sample size up to 500 mm Ø x 600 mm in height; 3D scanning area max. 290 mm Ø x 400 mm; up to 50 kg (110 lbs.)

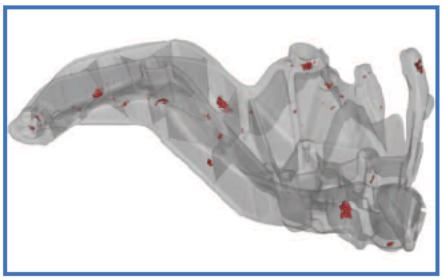


phoenix v|tome|x m

High-end tool for 3D industrial and scientific analysis tasks

Within the phoenix v|tome|x m, GE's unique 300 kV microfocus X-ray tube is for the first time available in a compact CT system for industrial process control as well as for scientific research applications. Beyond down to < 1 µm detail detectability, the system offers industry leading magnification and power at 300 kV. GE's high dynamic DXR digital detector array and the click & measure|CT automatization functionality make it an efficient 3D tool for industrial inspection and scientific research. Due to its dual|tube configuration, detailed 3D information for an extremely wide sample range is provided: from high resolution nanoCT® of low absorbing samples up to high power µCT applications such as turbine blade inspection.

Industrial non-destructive 3D testing

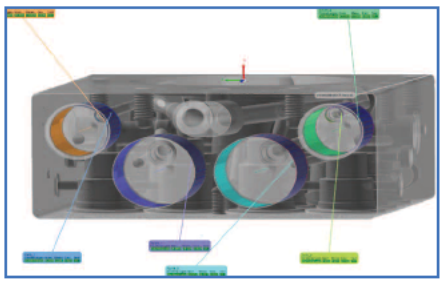


Automated 3D porosity analysis in an automotive control arm

Beyond high-resolution 3D analysis in R&D and failure analysis labs, the phoenix v|tome|x m allows even 3D production control due to its powerful 300 kV tube and high dynamic detector technology for fast CT acquisition, fast velo|CT volume reconstruction and its high automation grade. Applications are, e.g., in light metal casting, electronics assembly, plastics molding as well as in turbine blade inspection:

- Internal defect analysis / 3D quantitative porosity analysis
- Assembly control
- Materials structure analysis

Reproducible precision 3D metrology with CT

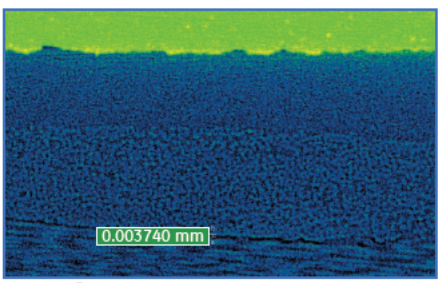


3D metrology of internal features of a valve block made of high grade aircraft aluminum

Especially if complex parts with hidden or difficult accessible surfaces have to be measured, 3D CT offers big advantages in comparison with conventional tactile or optical coordinate measuring machines (CMMs) e.g. for work piece qualification and fast first article inspection. Optimized for long term stability and equipped with its specific 3D metrology package and advanced scatter|correct technology, the phoenix v|tome|x m includes all essential features for CT with extremely high accuracy and reproducibility:

- Accuracy specification of 4+L/100 µm referring to VDI 2630 guideline*
- Nominal-actual CAD comparison
- Dimensional measurements / wall thickness analysis
- Reverse engineering / tool compensation

Explore the 3rd dimension of science



nanoCT® of an aluminium plate (green) welded with carbon fibers in polyamide matrix

With it's high resolution 180 kV nanoCT® option, the new phoenix v|tome|x m opens a non destructive third dimension for scientific research down to the submicron scale - with no required preparation, slicing, coating or vacuum treatment. Analyze biomedical, materials science, composite, electronics or geological samples with down to < 1 micron voxel size.

Compact CT system with unique dual|tube combination

phoenix datos|x CT software

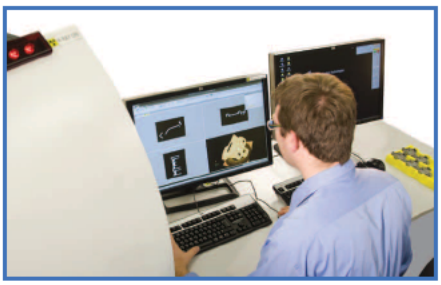
Fully automated data acquisition and volume processing

With datos|x, the entire CT process chain can be fully automated. Once the appropriate setup is programmed, the whole scan and reconstruction process as well as 3D failure analysis or metrology evaluations like generation of first article inspection reports can be executed automatically.

Precise, reliable and fast CT results

By using phoenix datos|x CT software, 3D metrology and failure analysis with phoenix|x-ray CT systems becomes as fast and easy as never before.

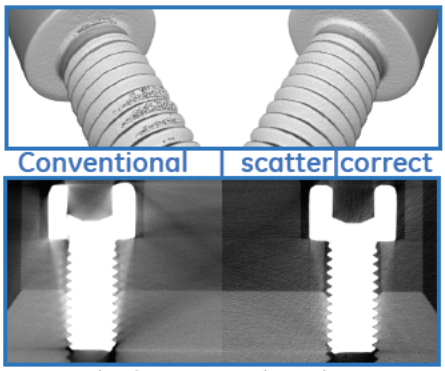
- click & measure|CT: Fully automated data acquisition and volume processing – insert sample, start CT scan, check results
- Reproducible high precision 3D metrology and failure analysis tasks performed with a minimum of operator training
- Significant reduction of required operator time by factor of up to 5
- Wide spectrum of modules for ease of use and accurate CT results



Easy and user friendly CT operation and evaluation.

Unique scatter|correct technology

GE's breakthrough scatter|correct technology innovation is exclusively available in industrial microCT for the v|tome|x m system. This technological advancement automatically removes scatter artifacts from the CT volume, allowing users to gain significant improved CT results compared to conventional cone beam microCT.



Compared with conventional cone beam CT, scatter|correct significantly improves the result quality of CT

phoenix v|tome|x m - Your Advantages

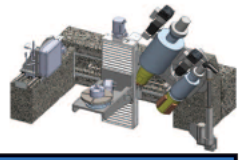
- **Reduced CT artifacts by up to 300 kV X-ray radiation and advanced, high quality scatter|correct option**
- **High precision 3D metrology referring to VDI standard 2630 and non destructive testing tasks performed with minimal operator training**
- **Increased 3D inspection throughput due to high power X-ray tube, efficient, fast detector technology and a high grade of automation**
- **Very high image quality due to unique GE DXR detector array with an extremely high dynamic range**
- **All major hardware and CT software components of the system are proprietary GE technology optimally compatible with one another**
- **Significant reduction of required operator time by using the click & measure|CT functionality**
- **Stability optimized CT acquisition conditions due to temperature stabilized X-ray tube, digital detector array and cabinet**



The unique 300 kV microfocus X-ray tube allows 3D scans even of large or high absorbing work pieces.

CT - measure and control with insight

Technical Specifications & Configurations



	phoenix v|tome|x s	phoenix v|tome|x m**
X-ray tube type	Open directional high-power microfocus X-ray tube, closed cooling water circuit. Optional additional (open) transmission high power nanofocus X-ray tube	
Max. voltage / power	240 kV / 320 W	300 kV / 500 W. Alternatively available with 240 kV / 320 W microfocus X-ray tube
	Optional additional 180 kV / 15 W in dual|tube configuration. Easy tube exchange just by a push of a button	
Geometrical magnification (3D)	1.46 x to 100 x; up to 200 x with nanofocus tube	1.3 x to 100 x at 800 mm FDD (min. sample Ø 2 mm), up to 200 x with nanofocus tube
Detail detectability	Down to < 1 micron (microfocus tube); optional down to < 0.5 micron (nanofocus tube)	
Min. voxel size	Down to 2 microns (microfocus tube)	Down to 1 micron (microfocus tube)
	Optional down to <1 micron (nanofocus tube)	
Measurement accuracy		4+L/100 µm referring to VDI 2630-1.3 guideline* /**
Detector type (all according US ASTM E2597-07 standard)	Temperature stabilized digital GE DXR detector array, 200 µm pixel size, 1,000 x 1,000 pixels, 200 x 200 mm, extremely high dynamic range > 10000:1, 2x detector enlargement	Temperature stabilized digital GE DXR detector array, 200 µm pixel size, 2000 x 2000 pixels, 400 x 400 mm, extremely high dynamic range > 10000:1
	Optional 400 x 400 mm large 4 MPixel DXR detector (without detector enlargement)	
Manipulation	6-axes metal precision manipulator	Granite based precision 5-axes manipulator (6-axes with detector shift)
Focus-detector-distance	800 mm	800 mm fixed
Max. sample diameter x height	max. 3D scanning size up to 260 mm x 420 mm	360 mm x 600 mm; up to 500 x 600 mm with limited travel range, max. 3D scanning size up to 290 mm x 400 mm
Max. sample weight	max. up to 10 kg (220 lbs.)	High accuracy CT up to 20 kg (44 lbs.); max. up to 50 kg (110 lbs.)
Focus object distance (microfocus tube)	7 mm to 545 mm	8 mm to 600 mm at FDD 800 (min. sample Ø 2 mm)
System dimensions W x H x D	2,170 mm x 1,690 mm x 1,500 mm (85.4" x 66.5" 59")	2,620 mm x 2,060 mm x 2,980 mm (103" x 81" x 117.3) D 1,570 mm (62") without user panel and generators
System weight (without ext. components)	Appr. 2,900 kg /6,400 lbs.	Appr. 7,960 kg /17,550 lbs. (300 kV configuration) Appr. 6,410 kg /14,150 lbs. (240 kV configuration)
Temperature stabilization	Active X-ray tube cooling | temperature stabilized detector	Active X-ray tube cooling | temperature controlled cabinet | temperature stabilized detector
Optional scatter|correct hard-/software bundle (also uprade option)		CT quality like 2D fan beam CT with minimized scatter radiation artifacts. Max. scan diameter: 260 mm, geom. magnification 1,51x - 100x
Opt. 2D inspection bundle	Tilt and rotation axes for tilted 2D inspection of samples up to 10 kg (22 lbs.) | 2D inspection software	
Opt. 3D metrology bundle** (also uprade option)	High accuracy direct measuring system | 2 calibration objects | phoenix datos|x CT software package "metrology"	
Opt. nanoCT® bundle	180 kV / 15 W high power nanofocus tube | Precision rotation unit with air bearings | diamond|window	
Opt. click&measure|CT	Optional fully automated CT process chain	included
Software	phoenix datos|x 3D computed tomography acquisition and reconstruction software. Different 3D evaluation software packages for 3D metrology, failure or structure analysis on request	
Radiation protection	The radiation safety cabinet is a full protective installation without type approval according to the German RöV. It complies with French NFC 74 100 and the US Performance Standard 21 CFR Subchapter J. For operation, other official licenses may be necessary.	

* Measured as deviation of sphere distance in tomographic static mode SD(TS), method details referring to VDI 2630-1.3 guideline on request, valid only for phoenix v|tome|x m metrology edition

** phoenix v|tome|x m metrology|edition only available in specific countries at present, more information on request

FROST & SULLIVAN
2016 BEST PRACTICES AWARD
GLOBAL INDUSTRIAL CT SYSTEMS COMPANY OF THE YEAR AWARD

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Fax: +49 5031 172 299
E-mail: phoenix-info@ge.com

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E-mail: phoenix-usa@ge.com

GEIT-31319EN 03/16

www.gemeasurement.com/x-ray

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CT-ALPHA

This system meets the most stringent demands in CT X-ray. With the CT-ALPHA, we offers the highest possible flexibility for individual customer requirements.

This space-saving system can be equipped with different X-ray powers, from 160kV for nanometer resolution through 225 kV, 320 Watts to the highest power of 320 kV, 800 Watts.

The variable focus-detector distance permits maximum contrast. As an option, the CT-ALPHA offers the Helix-Scan technique for longer objects as well as for the best avoidance of volume CT artefacts for optimum results in dimensional measurement.

Very large geometric magnifications permit real-time reconstructions in the submicron range. The CT-ALPHA system is ideal for non-destructive testing, materials investigations and, in particular, dimensional measurements of internal structures, undercuts and free form surfaces.

Features

- Industrial X-ray Computed Tomography (CT)
- 3D volume CT
- Non-destructive testing (NDT) – 2D and 3D
- Quality control independent of material
- Defect recognition (voids, cracks, ...)
- Contactless metrology
- CT reconstruction in real-time
- Ring artefact suppression
- Helix CT
- Easy operation
- Radiation safety better than 1 µSv/h

	Standard	Advanced	Metrology
X-ray voltage	160 kv	160 kv	225 kv
Detector	50 µm, 1 K²	33 µm, 9 K²	100 µm, 8 K²
Specimen	70 mm, 5 kg	70 mm, 20 kg	300 mm, 50 kg
Axes	5	5	5
Reconst-ruction	1 K³, re-al-time;	1 K³, real-time; 27 K³, off-line	1 K³, real-time; 32 K³, off-line
Smallest 3D detail	1 µm	0.33 µm	0.25 µm
System weight	2100 kg	2300 kg	2600 kg

ProCon X-Ray GmbH
Ludwig-Erhard-Ring 6A
31157 Sarstedt
Germany

Phone +49 (0) 5066 – 98414-0
Fax +49 (0) 5066 – 98414-99
http://www.procon-x-ray.com
info@procon-x-ray.de

NORTH STAR IMAGING
AN ITW COMPANY

X5000 225kV Computed Tomography System



PREPARED FOR

Wayne Sumple
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
United States

SUBMITTED BY:
Jason Dimon
North Star Imaging, Inc.
763-463-5650
jdimon@4nsi.com

DATE OF QUOTE: 01/19/2017

QUOTE NUMBER: JD004533 v1

QUOTE VALID FOR: 30 days

CONFIDENTIAL: This document is intended to be confidential between the buyer and North Star Imaging, Inc. This document is not to be shared with other parties without the consent of North Star Imaging, Inc.

COMPANY PROFILE

North Star Imaging (NSI) manufactures, sells and services state-of-the-art X-ray Imaging systems and CT equipment for industrial use. Our company also designs and develops the software applications used in our systems. NSI provides system solutions from low production or R&D, to high resolution/high production/high energy. Our standard range of products is extremely flexible to meet varied customer requirements.





NSI began in the field of industrial X-ray Imaging in 1986 in Minnesota. The Company built its first Digital Radiography system in 1991 and first Computed Tomography system in 2002. From 2006, NSI widened its services and added an Inspection Services Group (ISG) offering need based consulting for anyone needing X-ray and/or computed tomography scanning. Aside from the ISG services, the company also has a Technical Service & Support team that is on call 24/7 to address immediate global customer service needs.

The corporate office is located in the city of Rogers, just outside Minneapolis, Minnesota. In 2010, the company was acquired by ITW which is a global company with 51,000 employees across 56 countries. Since then NSI has opened offices in Paris, France, Irvine, CA, High Wycombe, UK, and Suzhou, China. Worldwide NSI has approximately 100 skilled employees including application specialists, mechanical engineers, software engineers, programmers, level 3 instructors and others.

The global demand for cutting edge X-ray and CT equipment that provides advanced capabilities in an easy and intuitive user interface is what constantly pushes NSI to raise the bar with new and innovative products. The company has the widest product portfolio in the industry which keeps NSI way ahead of its competition. NSI offers seven (7) standard X-ray and CT/micro CT systems including the newly launched CXMM 50, an X-ray system designed specifically for 3D Metrology.

NSI is an ISO 9001:2008 certified company.

**Note: The following products or components are proposed as minimum requirements. Products or components exceeding those specified below may be substituted at NSI's discretion.*

System Description and Components

X5000 Industrial 2D Digital X-ray and 3D Computed Tomography System

NSI X-View Digital X-ray and Cone Beam micro CT System

The proposed system is a turnkey X-ray Inspection and Computed Tomography System designed specifically for industrial and research applications. This system utilizes an NSI radiation shielded enclosure and NSI X5000 Seven-axis component manipulator, an NSI X-View *efX-DR* Image processing Workstation with High Resolution flat panel Detector with microfocus X-ray system. This system is state-of-the-art in high-resolution digital X-ray and Computed Tomography imaging technology. **The system is manufactured in the USA.**

System Capabilities

- Advanced 2D X-ray inspection
- 2D CT Slice reconstruction
- CT volume reconstruction for 3D inspection
- 3D internal and external surface scanning
- Measurement and Analysis tools

X5000 Radiation Enclosure 225kV

- Radiation shielding to energies of 225kV constant potential.
- Approximate dimensions: 80" deep, 91" tall, 107" wide (2031mm deep, 2320mm tall, 2724mm wide).
- Steel/lead/steel construction.
- Cable access port with cover.
- Large motorized sliding access door with safety light curtains.
- Large lead glass viewing window
- Primary and secondary x-ray safety interlocks.
- Interior lighting.
- X-ray on warning light.
- Designed to meet all state and federal X-ray safety regulations.

X5000 Seven Axis Manipulator

Movement of the inspection object is limited to x, z, tilt and rotation, along with detector and tube vertical movement.

Some of the other features of the X5000:

- All drives are motorized with variable speed joystick operation
- Tethered desktop control console
- Detector Manipulator:
  - Focal Distance : 0" to 48" (0cm to 122cm)
  - Detector and Tube Vertical Axis - 48" (122cm)
- Part Manipulator:
  - X Axis / front to back translation: 33" (84cm)
  - Z Axis / focal distance tube to detector translation: 48" (122cm)
  - Tilt: +20 /-20 Degrees,
  - CT precision nickel plated 9" rotational stage - 360 Degrees Continuous. Resolution 0.001 degree
- 250lb (113kg) static capacity (not including tilt)
- Integrated electronics
- Aluminum tool plate construction - black anodized
- Precision linear bearing rail

**Exact measurements may vary slightly at time or order based on x-ray source, detector, optional component selection, or revision.*

efX Motion Control Module

The efX Motion Control Module provides an operator friendly teach and learn interface to create complex motion control programs easily and quickly.

X-ray Tube

Microfocus 225kV Directional

- Tube Voltage ...25 - 225kV
- mA Range ...0-3 mA
- Power ...320 W max
- Focal Spot Size < 6 microns
- Detail Recognition ...< 2 microns
- 10 Meter High Tension Cable
- Closed Loop Water Cooler

X-ray Control Unit

- Workstation with Windows operating system
- Automatic tube warm-up ... High voltage, filament current
- Automatic focusing, electron beam alignment and target loading control
- Spare parts and service kit

X-ray Detector

Varian Paxscan 2520DX

- 8” x 10” (203mm x 254mm) image area
- Premium CT Grade (best quality)
- Cesium Scintillator (best contrast)
- 127 micron pixel pitch. 1536x1920 pixels (approx. 3 Megapixels)
- 16 bit resolution
- 30 fps (2x2 pixel binning) image acquisition; 12.5 fps at full resolution
- Tungsten shielded to 225kV (increased lifetime)

Software and Workstations

efX-DR Workstation

- Windows® 10 Operating System
- Six-Core Intel® Xeon® Processor
- 8 GB RAM
- 3TB of Data Storage in RAID 0 Configuration
- DVD+/-RW Drive
- 10/100/1000 Network Interface
- NVidia High Performance Display Adaptor
- 30” (762mm) 4 Mega Pixel Color Display
- Wireless Keyboard and Mouse

efX-DR Software

X-View *efX-DR* is a high performance image analysis system with a comprehensive set of image analysis tools.

- *Windows*® based (Compatible with Windows 7 or higher)
- Non-proprietary image storage format.
- Multiple Windows interface
- High performance image processing and measurement functions utilizing GPU technology
- Automatic parallelization for systems with multiple CPU’s and GPU’s
- Live Imaging up to 30 frames per second
- Live Averaging, Live Histogram, Live line Profile, Live Rotation between portrait and landscape modes
- Live Measurements with 1 pixel resolution
- Live image gain/offset calibration and defective pixel correction
- Automatic creation of Technique sheet for operator record
- Capture video into AVI files.
- Supports digital flat panel detectors, LDA’s and digital/analog cameras at 8, 10, 12 and 16 bits.
- Read and store images in TIFF 32 bit / 16 bit / 8 bit, BMP, JPEG, RAW
- Seamless integration with *efX-CT* software

efX-DR CT Acquisition Module

The CT acquisition module provides automated CT acquisition capabilities for *efX-DR*.

- Capable of CT acquisition up to 10,000 angle steps.
- Technique sheet creator for operator record.
- Monitors x-ray performance and will pause the CT scan if x-ray interruption is detected.

Fast CT Acquisition Module

Module included in the *efX-DR* acquisition software. It allows continuous fast CT acquisition of projections for fast CT scans from 5 seconds to minutes for thousands of projections.

efX-CT FULL Computed Tomography Software

efX-CT is a powerful CT software that includes CT calibration, Cone-Beam reconstruction, 3D real time visualization and analysis tools in the same interface. efX-CT is Windows based and compatible with Windows 7 or higher.

- **EasyCT** - A 5-steps user-friendly process from the creation of the project to the final results. EasyCT guides the user through the calibration and reconstruction process thanks to an interactive interface and automatic processes.
- **AdvancedCT** - The user - at anytime - can switch to the advanced mode that gives access to the full set parameters for CT reconstruction.
- **Automatic Calibration** - This tool has been developed to optimize cone-beam CT reconstruction process and to simplify CT and µCT equipment.
- **Cone Beam Reconstruction** - Fastest reconstruction times on the market. Reconstruction performed on GPU hardware.
- **3D Volume Rendering** - Real time volume rendering. Export slices at any angle, create movie animations, performed localized reconstruction and more.
- **3D Surface Module** - Surface extraction to CAD compatible format: Export to STL (Stereolithography), cloud points, OBJ, DXF, WRL, PLY. Visualization in wireframe mode. Map textures with reflection.
- **efX-CT LITE**: The "Lite" version of efX-CT is especially developed for CT service customers. This software gives the capability to open any NSI CT volume, display and manipulate in 3D, adjust the grey level with the interactive 3D histogram, make screenshots and videos ...etc. This is a 30 days limited version

X-View efX-CT Basic Reconstruction Workstation

- Windows® 10 Operating System
- Six-Core Intel® Xeon® Processor
- 8GB RAM
- 4TB of Data Storage with RAID 5 Capabilities
- NVidia High Performance Display Adaptor for Display and Reconstruction
    - 4GB GPU Memory
    - 2048 Processing Cores
- DVD+/-RW Drive
- 10/100/1000 Network Interface
- 30" (762mm) 4 Mega Pixel Color Display
- Wireless Keyboard and Mouse

efX Detector Qualification Software License

The efX Process Control Software is an interface that allows the user to routinely monitor digital detectors. Specifically, this module allows for the qualification of pixel mapping and the verification of the detector quality, spatial resolution, and contrast sensitivity. Also included in this module is a SMPTE test pattern used for checking the quality of the display monitor.

To include the following:

- Pixel Mapping Qualification
- Detector Quality Check
- Spatial Resolution
- Contrast Sensitivity Check
- SMPTE Display Test Pattern

Ergo Desk and NSI Chair

Industrial ergonomic control console. The ergo console is the ultimate in workstation adjustability and efficiency. Depress the hand release paddle for immediate, yet controlled, surface height positioning from 27.5" to 42.5" (70cm to 108cm) - without electric power. Innovative monitor arm allows easy, independent focal and height adjustment of an entire bank of monitors - without electrical power. The spring counterbalance design provides ease of adjustment with long-term reliability. Multi-monitor support with chair.

Additional Components

Copper Filter Kit

Set of copper filters for use with microfocus tubes

- Selection of 0.005", 0.010", 0.020", 0.040", 0.060", 0.080" thick filters

Installation and Training

Installation

NSI will perform installation with factory trained NSI personnel. Buyer is responsible for movement of equipment from the shipping area to the installation site, placement of machine at final installation site, and providing for refuse disposal. Buyer is also responsible for power requirements specified by NSI.

Onsite DR / CT System Training (4 days)

NSI will provide on-site 4-days DR/CT system operation training.

Digital Radiography & Intro to CT Training (40 hour course) (One Seat)

NSI will provide two (2) seats to the 40 hour ASTM/ASNT Certified DR/CT training course, held in Rogers, MN.

This course follows the recommended curriculum of FWG-IDR, MAI, ASTM and ASME in a format for compliance with NAS 410 and SNT-TC-1A type Qualification/Certification programs.

For more info visit: http://4nsi.com/training

NSI Advanced CT Training (40 Hour course) (One Seat)

NSI will provide one (1) seat to the 40 Hour Advanced CT Class held in Rogers, MN

This unique course includes CT Technique Development training, CT Reconstruction and Post Processing training, hands on in the CT lab with access to a wide variety of CT and microCT systems.

For more info visit: http://4nsi.com/training

Maintenance

Warranty / 1st Year (1 Visit) - Open Tube

1st Year efX-DR and efX-CT Software Updates

Shipping

Shipping: Included

X5000 Crating for Shipment

FINANCIAL INVESTMENT

QTY 1	**X5000 225kV Computed Tomography System**	**$449,867.29**
	X5000 Industrial 2D Digital X-ray and 3D Computed Tomography System	
	X5000 Radiation Enclosure 225kV	
	X5000 Seven Axis Manipulator	
	efX Motion Control Module	
	Microfocus 225kV Directional	
	Varian Paxscan 2520DX	
	efX-DR Workstation	
	efX-DR Software	
	efX-DR CT Acquisition Module	
	Fast CT Acquisition Module	
	efX-CT FULL Computed Tomography Software	
	X-View efX-CT Basic Reconstruction Workstation	
	efX Detector Qualification Software License	
	Ergo Desk and NSI Chair	
	Copper Filter Kit	
	Installation	
	Onsite DR / CT System Training (4 days)	
	Digital Radiography & Intro to CT Training (40 hour course) (One Seat)	
	NSI Advanced CT Training (40 Hour course) (One Seat)	
	Warranty / 1st Year (1 Visit) - Open Tube	
	1st Year efX-DR and efX-CT Software Updates	
	Shipping: Included	
	X5000 Crating for Shipment	

Options

Second Year PM (2 Visits) - Open Tube	$10,950.00
Second Year efX-DR and efX-CT Software Updates	$8,500.00

Payment Terms:

40% due net 10 days upon acceptance of PO
50% due net 10 days upon shipment or anticipated ship date if delayed by customer.
10% due net 30 days upon delivery to customer's facility.
Quoted in US Dollars. Taxes and Duties are not included.

Delivery Information:

Delivery: On or Before March 31st, 2017*
Note: Delivery schedule starts with receipt of down payment
Incoterms 2014, FOB Origin
Shipping: Included
Rigging: Client Responsible for unloading the system from semi truck bed and placing system into building in final resting place for use.

DESCRIPTION OF OPTIONS

Second Year PM (2 Visits) - Open Tube

Second Year efX-DR and efX-CT Software Updates

NORTH STAR IMAGING, INC.

An ITW Company

1. DEFINITITIONS

1.1 The "COMPANY" shall mean North Star Imaging, Inc.

1.2 The "CUSTOMER" shall mean the person, firm, company or other organization entering into the CONTRACT as defined in subsection 1.8 below.

1.3 The "GOODS" shall mean all items manufactured or supplied by the COMPANY.

1.4 The "INSPECTION SERVICES" shall mean all x-ray imaging services performed by COMPANY personnel on CUSTOMER SUPPLIED PARTS.

1.5 The "CUSTOMER SUPPLIED PARTS" shall mean all parts or other items provided by the CUSTOMER to the COMPANY for INSPECTION SERVICES as defined in subsection 8.2 below.

1.6 The "MAINTENANCE SERVICES" shall mean all specific advice and services performed by the COMPANY which are not INSPECTION SERVICES.

1.7 The "SERVICES" shall mean, collectively, all INSPECTION SERVICES and MAINTENANCE SERVICES performed by the COMPANY

1.8 The "CONTRACT" shall mean the agreement arising between the COMPANY and the CUSTOMER following receipt of the CUSTOMER'S order for the GOODS and/or SERVICES comprised in the COMPANY'S quotation or, if no quotation has been given, the agreement arising on dispatch by the COMPANY of a written acceptance of the CUSTOMER'S' order or shipment of the GOODS, which ever first occurs.

2. GENERAL

All CONTRACTS entered into by the COMPANY are subject to and governed solely by these terms and conditions of sale, which may only be varied by the COMPANY in writing. Acceptance of any purchase order by the COMPANY is expressly made conditional on assent by the CUSTOMER to any additional or different terms or conditions set forth herein.

3. PRICES AND QUOTATIONS

3.1 All quotations issued by the COMPANY for the supply of GOODS and SERVICES shall remain open for acceptance for the period stated in the quotation or, if none is stated, for ninety days.

3.2 In all other cases prices for GOODS to be supplied or SERVICES performed by the COMPANY shall be those in effect upon shipment or performance.

3.3 All prices quoted for the supply of GOODS and SERVICES shall be exclusive of sales, use and Retailers' occupation taxes and any other taxes or customs/excise duties and the COMPANY shall be entitled to charge the CUSTOMER (or be reimbursed for) these items at the applicable rate.

3.4 Unless otherwise agreed in writing the company shall charge the customer for packaging, carriage and any insurance requested by the CUSTOMER.

4. PAYMENT

4.1 Unless otherwise agreed in writing (i.e. proposal, quotation), payment of all invoices shall be made to the COMPANY in full in U.S. dollars no later than thirty days from the date of invoice. Down and/or progress payments may be required and payment may be required before progress resumes.

4.2 In the event of delay in payment, the COMPANY reserves the right to:

4.2.1. suspend deliveries and/or cancel any of its outstanding obligations under the CONTRACT; and

4.2.2 levy a service charge to cover administrative and other associated costs in relation to overdue accounts at the rate of the lesser of 2% per month on all unpaid amounts or the maximum percentage permitted by applicable law.

4.3 The CUSTOMER shall have no right to set off any amounts owing to or alleged to be owing to it by the COMPANY against unpaid invoices due to the CUSTOMER.

4.4 The COMPANY shall have the right for reasonable cause to withdraw or refuse credit facilities or to require from the CUSTOMER cash on or before delivery or security for payment and to withhold delivery until such requirement is complied with.

4.5 Any claim or inquiry by the CUSTOMER in respect of the invoiced price of the GOODS or SERVICES must be submitted in writing to the COMPANY within the credit period referred to in subsection 4.1

5. DELIVERY

5.1 Unless otherwise agreed in writing between CUSTOMER and the COMPANY, all GOODS will be shipped Ex-Works (EXW) Rogers, MN USA.

5.2 The CUSTOMER shall ensure that adequate and safe facilities and procedures exist for receipt of the GOODS at its premises at the time of delivery by the COMPANY or its agent or carrier, and warrants to the COMPANY that the site where it intends to use the GOODS is suitable in all respects for their intended use and is licensed in accordance with any relevant local, state and federal regulations.

5.3 All delivery dates are quoted in good faith, but the COMPANY reserves the right to alter them notifying the CUSTOMER as soon as reasonably practicable. THE COMPANY WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL OR ECONOMIC LOSS OR DAMAGE DUE TO DELAY IN DELIVERY, HOWEVER CAUSED.

5.4 The CUSTOMER shall not be entitled unreasonably to delay delivery or refuse to accept delivery. However, if in the opinion of the COMPANY, the CUSTOMER:

5.4.1 is not ready to receive the GOODS on the day intended, or

5.4.2 fails to give the COMPANY adequate instructions, or

5.4.3 fails to pick up GOODS intended for pick up, or

5.4.4 fails to comply with the provisions of subsection 6.2 in whole or in part,

then the COMPANY shall be entitled to store, dispose of or otherwise deal with the GOODS in any way it thinks fit without being liable in any way for any resulting loss suffered by the CUSTOMER and to charge for any costs incurred. In addition, the COMPANY shall have the right to cancel the CONTRACT. If the CUSTOMER unreasonably delays delivery or refuses to accept delivery, the COMPANY shall be entitled to the full invoice price for the GOODS plus any costs of disposal, less the amount, if any, received by the COMPANY in disposing of or otherwise dealing with the GOODS.

5.5 The CUSTOMER shall promptly notify the COMPANY in writing in the event those GOODS does not arrive within seven days of their anticipated receipt.

6. ACCEPTANCE

6.1 In cases where the COMPANY is involved in the installation of GOODS, the CUSTOMER shall allow the COMPANY and its representatives proper access to the site during the installation period and following completion of installation, the GOODS shall be accepted by the CUSTOMER when they have been demonstrated to be in proper working order.

6.2 In all other cases, the CUSTOMER shall inspect the GOODS, within seven days of receipt and failure to notify the COMPANY in writing of any defect or other proper objection to the GOODS or their

packaging within such period shall constitute acceptance by the CUSTOMER.

6.3 Acceptance by the CUSTOMER shall be without prejudice to its rights under Section 10.

7. RISK AND TITLE

7.1 Unless otherwise agreed to in writing, Risk of loss in or damage to the GOODS shall pass to the CUSTOMER upon shipment.

7.2 Unless Otherwise agreed to in writing Title to the GOODS shall pass to the customer upon shipment.

7.2.1 The CUSTOMER agrees to allow the COMPANY to ship the GOODS to the destination using COMPANY approved carriers and methods.

7.3 Unless otherwise agreed to in writing, the COMPANY shall bear no risk of damage or loss related to CUSTOMER SUPPLIED PARTS.

7.4 In the event that the CUSTOMER enters into liquidation voluntarily or involuntarily, the COMPANY shall be entitled:

7.4.1 to immediately terminate the CONTRACT without notice and/or

7.4.2 to enter the premises of the CUSTOMER with such transport as may be necessary and repossess any of the GOODS to which it is entitled under subsection 8.3.

7.5 Nothing in this Section shall confer any right upon the CUSTOMER to return the GOODS or to refuse or delay payment for it.

8. SERVICES

8.1 Where the COMPANY is to perform MAINTENANCE SERVICES, the CUSTOMER shall ensure that:

8.1.1 adequate and safe facilities and procedures exist at its premises and that the COMPANY is notified in advance of any relevant regulations or statutory requirements that affects such premises.

8.1.2 where the MAINTENANCE SERVICES are performed outside the United States the COMPANY is notified in advance of any regulations, consents or statutory requirements it has to comply with, and

8.1.3 subject to subsection 8.1.2 it shall comply with all relevant regulations and provide all necessary licenses and certificates.

8.2 Where the COMPANY is to perform INSPECTION SERVICES, the CUSTOMER:

8.2.1 represents and warrants that CUSTOMER has rightful ownership of the CUSTOMER SUPPLIED PARTS.

8.2.2 represents and warrants that no consent is required from any third party prior to performing INSPECTION SERVICES on the CUSTOMER SUPPLIED PARTS.

8.2.3 shall supply the COMPANY, in advance, with copies of any and all relevant regulations or statutory requirements that may affect the handling of the CUSTOMER SUPPLIED PARTS.

8.2.4 agrees that, unless otherwise established in writing, the COMPANY will provide copies of images acquired through INSPECTION SERVICES but that any decision to accept or reject parts based on the scans shall be the sole responsibility of the CUSTOMER.

8.3 The COMPANY shall be entitled to refuse to perform the CONTRACT without liability if the provisions of subsection 8.1 or 8.2 are not strictly complied with by the CUSTOMER.

8.4 Where the COMPANY is to perform those SERVICES listed below; certain additional conditions shall apply to the CONTRACT, copies of which are available on request.

8.4.1 Consultancy and Design

8.4.2 Customs Synthesis and Labeling,

8.4.3 System Installation and/or Modification

9. WARRANTY

9.1 Certain items of GOODS manufactured and/or supplied by the COMPANY benefit from a long-term warranty, details of which will be made available to the CUSTOMER in writing at the time of quotation or prior to conclusion of the CONTRACT.

9.2 The COMPANY warrants that all GOODS will at the time of receipt by the CUSTOMER be free from defects and conform to the relevant technical specification and that all SERVICES will be carried out by the COMPANY with reasonable care and skill but the COMPANY'S sole liability for breach of this warranty shall be at its option to give credit for, replace or repair any GOODS or SERVICES PROVIDED THAT:

9.2.1 the COMPANY is informed in writing within seven days of the failure or defect becoming apparent, and

9.2.2 the failure or defect is shown to the COMPANY'S reasonable satisfaction to be due to its faulty design, workmanship, material or packaging.

9.3 The warranty in subsection 9.2 shall, except in the case of GOODS sold by the COMPANY for use in research (which GOODS are warranted at date of receipt only), extend for a period of 12 months from the date of receipt of the GOODS or completion of the SERVICES, provided that if a shorter warranty period is stated in the product literature, then such shorter period shall govern.

9.4 COMPANY warrants each new COMPANY system against defects in material and workmanship for a period of 12 months from the transfer of title from the COMPANY. If a component fails within the scope of this warranty, after inspection of the product at the factory, COMPANY, at its option, will either repair or replace the defective component. COMPANY acts as an agent, dealer and integrator for a number of components and equipment not of its own manufacture. Original manufacturer's warranties will apply to the end user on these components. During the 12-month warranty period, repair labor will be without charge - provided the repairs meet warranty terms and the work is performed during normal working hours (8 am to 5pm, Monday – Friday), excluding holidays. Standard labor charges apply to repairs performed outside of normal working hours. COMPANY'S sole obligation is to repair or replace equipment found to be defective. This does not extend to consumables or to damage resulting from accident, misuse, neglect, improper maintenance or improper application. Uses of accessories not provided with the equipment or damage caused by improper power or ambient conditions will not be covered. This warranty is void when service personnel not authorized by COMPANY perform installation, service, alterations or repairs on any part of the equipment. This warranty extends only to the first end user and is not transferable. Reconditioned or used equipment is sold "as-is" with no warranty unless otherwise indicated.

10. EXCLUSION and LIMITATIONS of LIABILITY

10.1 THE WARRANTIES OF THE COMPANY IN SECTION 9 ARE EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, GUARANTEES, CONDITIONS, OBLIGATIONS OR LIABILITIES WHICH MAY BE EXPRESSED OR IMPLIED BY THE COMPANY OR ITS REPRESENTATIVES, ALL STATUTORY AND IMPLIED WARRANTIES OR CONDITIONS, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND OTHER THAN TITLE, ARE HEREBY EXPRESSLY NEGATED AND EXCLUDED.

10.2 The COMPANY shall not be bound by any representations or statements on the part of its employees or agents whether oral or in writing except where such representations or statements are expressly made part of the CONTRACT.

10.3 The CUSTOMER shall give the COMPANY prompt written notice of any complaint of breach of warranty. The maximum liability for breech of warranty shall be the invoice price of the PRODUCT or the amount of money paid to the COMPANY for SERVICES, as applicable. Upon the COMPANY'S request, the CUSTOMER shall return the PRODUCT to the COMPANY at the COMPANY'S expense.

10.4 SAVE FOR THE WARRANTIES IN SECTION 9, THE COMPANY SHALL NOT BE LIABLE TO THE CUSTOMER FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL OR ECONOMIC LOSS OR DAMAGE RELATING TO ITS GOODS OR SERVICES EXCEPT IN SO FAR AS SUCH LIABILITY RELATES TO DEATH OR PERSONAL INJURY RESULTING FROM THE COMPANY'S NEGLIGENCE.

10.5 The CUSTOMER shall ensure that the specification of the GOODS ordered is suitable and safe for the intended use or environment of

use except where it makes known details of such use to the COMPANY in writing prior to conclusion of the CONTRACT in such a way as clearly to place reliance on the COMPANY'S special skills.

10.6 The CUSTOMER shall handle the GOODS in a suitable and safe manner and shall comply with any instructions supplied to it by the COMPANY. The CUSTOMER shall also pass on to users (including purchasers and users of other goods and goods into which the GOODS are incorporated) all relevant safety information, and shall use best efforts to cause such users to exercise due care in the handling of the GOODS.

10.7 WHERE THE COMPANY EXPERIENCES TECHNICAL DIFFICULTIES IN THE PRODUCTION OF NON-STANDARD OR CUSTOM-MADE PRODUCTS IT MAY CANCEL THE CONTRACT WITHOUT BEING LIABLE TO THE CUSTOMER IN ANY WAY.

10.8 When the CUSTOMER supplies designs, drawings and specifications to the COMPANY to enable it to manufacture non-standard or customer made GOODS the CUSTOMER warrants that such manufacture will not infringe the intellectual property rights of any third party, and the COMPANY shall not be liable for any loss, damage or defect arising out of or resulting from such designs, drawings or specifications supplied by the CUSTOMER.

10.9 The CUSTOMER expressly acknowledges that the COMPANY is not a certified testing laboratory and that the COMPANY does not guarantee the correctness or completeness of its INSPECTION SERVICES. Accordingly, all risk and liability relating to the CUSTOMER SUPPLIED PARTS (including, but not limited to products liability) shall be retained exclusively by the CUSTOMER.

11. INDEMNITIES

11.1 The CUSTOMER shall indemnify and hold the COMPANY harmless from any actual costs or expenses (including, but not limited to reasonable attorneys fees and amounts paid in settlement of claims) related to any actual or threatened claim, which may be made against the COMPANY:

11.1.1 that the use of the GOODS constitutes a breach of the Occupational Safety and Health Act or related regulations or any other relevant state, federal or international safety legislation and regulations.

11.1.2 that the use of the GOODS or provision of SERVICES infringes the patent, copyright or other intellectual property rights of any third party,

11.1.3 by any third party for liability related to CUSTOMER SUPPLIED PARTS or the COMPANY's provision of INSPECTION SERVICES.

11.1.4 arising out of the representations and warranties made by the CUSTOMER pursuant to this CONTRACT; or

11.1.5 arising out of the failure of the CUSTOMER to observe the terms of the CONTRACT.

11.2 The provisions of subsection 11.1 shall not apply where the claim arises as a direct result of (a) the gross negligence or willful misconduct of the COMPANY or its employees; or (b) the use of the GOODS is in accordance with the COMPANY'S written instructions.

12. STANDING ORDERS

12.1 Acceptance by the COMPANY of each standing and call off order received from the CUSTOMER for the supply and delivery of fixed quantities of GOODS and/or SERVICES at stated intervals or for the supply of fixed quantities of GOODS and/or SERVICES at intervals to be advised by the CUSTOMER shall constitute a single CONTRACT.

12.2 All such orders, once accepted, are subject to cancellation by the COMPANY (without liability on the part of the COMPANY) on giving thirty days prior written notice to the CUSTOMER, provided that the COMPANY may cancel without notice in the event that either:

12.2.1 the provisions of subsection 7.4 apply to the CUSTOMER, or

12.2.2 the CUSTOMER is in breach of subsection 4.1

13.1 The CUSTOMER shall only be entitled to cancel such orders on giving thirty days prior written notice to the COMPANY and after repayment to the COMPANY amount of any discount of special price reduction from which the CUSTOMER has benefited up to the date of cancellation.

13. FORCE MAJEURE

13.1 The COMPANY shall not be liable for any failure to fulfill the CONTRACT or any term or condition of the CONTRACT if fulfillment has been delayed, hindered or prevented by any circumstances beyond its reasonable control, including but not limited to any strike, lock-out or other industrial dispute, Act of God, compliance with requirements of any Government port or international authority, plant breakdown, goods failure and inability to obtain goods, fuel, power, materials or transportation.

13.2 The COMPANY shall promptly notify the CUSTOMER if an event of force majeure arises and during the period in which the COMPANY is prevented from performing the CONTRACT the CUSTOMER shall be entitled after giving the COMPANY written notice of its intention to do so to purchase GOODS elsewhere at its own cost and risk and the COMPANY shall not be obliged to make up deficiencies which arise as a result.

13.3 If an event of force majeure exceeds one month, the COMPANY may cancel the CONTRACT without liability.

14. MISCELLANEOUS

14.1 The failure of the COMPANY to enforce its rights under the CONTRACT at any time for any period of time shall not be construed as a waiver of any such rights.

14.2 The CUSTOMER undertakes not to use any trademarks or trade names applied by the COMPANY to the GOODS nor to do or permit anything whereby the goodwill and reputation of such trademarks or trade names is prejudiced or damaged.

14.3 Each party represents and warrants to the other that it is a "Merchant" as that term is defined in 12-104 of the Uniform Commercial Code.

14.4 Unless otherwise specified in writing in the CONTRACT, all intellectual rights existing or created in GOODS to be supplied or arising in the course of performance of SERVICES to be performed under the CONTRACT shall be the property of the COMPANY.

15. GOODS RETURN

15.1 Certain items of GOODS manufactured and/or supplied by the COMPANY benefit from a one-for-one GOODS return policy, details of which will be made available to the CUSTOMER in writing at the time of quotation or prior to conclusion of the CONTRACT.

15.2 In all other circumstances, return of GOODS supplied by the COMPANY will be subject to the prior written agreement of suitable terms (including recompense) by the COMPANY. Where a CUSTOMER returns GOODS without such prior written agreements such GOODS shall be returned to the CUSTOMER, who shall be charged fully for all costs incurred by the COMPANY.

15.3 In all cases where acceptance of returned GOODS has been agreed by the COMPANY, then the CUSTOMER shall be responsible for all charges incurred in returning such GOODS.

16. CANCELLATION POLICY

16.1 Orders for standard inventory items that are cancelled after acceptance by the COMPANY (or authorized distributor) are subject to a 25% restocking fee. All other items are non-cancellable and are subject to a charge of up to 100% of the original order value.

17. GOVERNING LAW

17.1 The contract shall be governed, interpreted and enforced by the laws of the State of Minnesota, USA without regard to conflict of law principles.

2D Digital X-ray and 3D Computed Tomography

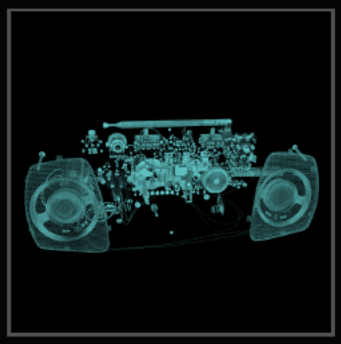


X5000

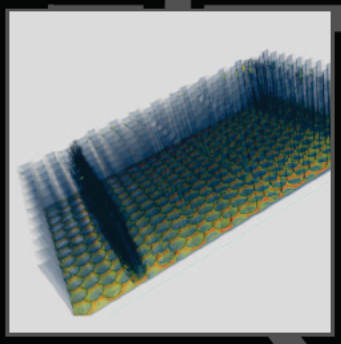
The X5000 is a multi-axis high-resolution digital x-ray system for digital radiography and computed tomography inspection of small to large objects with a large format detector. The 5000 Series has innovative cabinet and manipulator designs for easy part loading of even the largest of objects. The system can accommodate a variety of part shapes, sizes and weights. The steel/lead/steel cabinet has a fit and finish that is unparalleled in the industry and the machine tool technology used in the motion control system ensures a long trouble free life. All systems are manufactured to meet all state and federal radiation safety regulations.



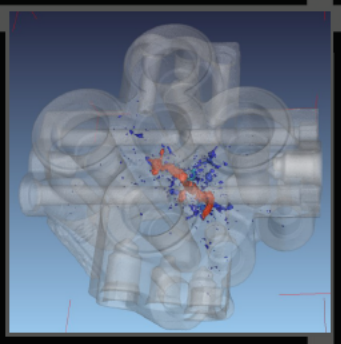
RESEARCH



ELECTRONICS



AEROSPACE



CASTINGS

SPECIFICATIONS

OVERALL

- X-ray Energies from 10kV-600kV
- Geometric Magnification: Greater than 2000x
- Overall Maximum System Resolution: better than 500nm
- Meets ASTM E2597 Standard

CABINET

- External Dimensions: 79" Wide x 108" Deep x 92" Tall (200cm Wide, 274cm Deep, 232cm Tall)
- Cabinet Features: Cable access port with cover, interior lighting, powered sliding access door(s), leaded glass viewing window/ internal camera monitoring system, safety light curtains
- Optional bi-parting doors for overhead part loading
- Steel/lead/steel construction
- Meets or exceeds all federal and state radiation safety regulations
- Touch screen operation
- Includes one ergonomic desk and chair

MANIPULATOR

- Maximum Sample Weight: 250lbs (113kg)
- Scan Travel (customization available): Vertical = 48" (122cm), Horizontal = 33" (84cm), Z axis (source to detector) = 48" (122cm), Tilt = +20º/-15º, Rotation = 360º continuous
- Motorized detector travel for variable focal distance adjustment
- Part Manipulation Control:
  - All drives variable speed joystick controlled
  - Each axis is independently controlled
- Option: Control-X: Programmable CNC controlled automated scanning with automatic image processing and archiving capabilities
- Option: Rotational stage indexes outside of the cabinet for easy part loading/unloading

X-RAY SOURCE

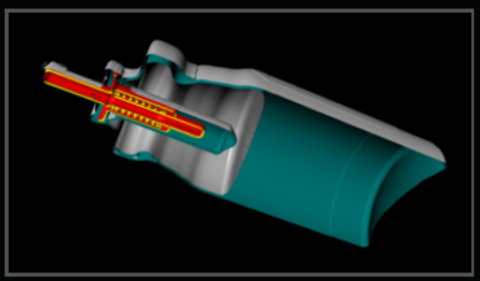
- Voltage Range: 10kV-600kV
- Minimum Focal Spot Size: < 500nm
- X-ray Tube Types: Nano-focus, Micro-focus, Mini-focus, Open or Sealed, Transmission or Directional or Dual Head

X-RAY DETECTOR

- Digital X-ray Detector Types: Flat Panel (DDA), Linear Diode Array (LDA), Image Intensifier
- Grade Options: Standard or CT Premium, 14bit or 16bit
- Detector Size: Up to 16" x 16" (40cm x 40cm)

X-VIEW SOFTWARE

- Comprehensive acquisition, processing and archival program with user-friendly interface
- High performance image processing and measurement functions
- Non-proprietary multiple image format output/input. Diconde compliant
- Automated program functions for fast analysis
- Multiple window interface for display of raw image, processed image, density data, etc.
- Computed Tomography acquisition module
- Optional 3D Computed Tomography calibration, reconstruction and visualization
- Optional 4D Computed Tomography

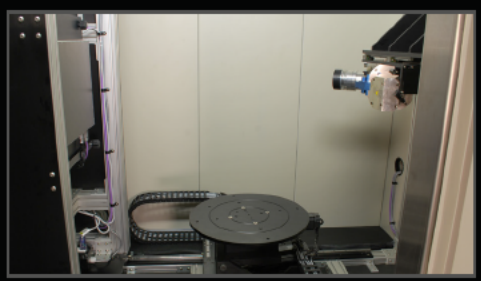


MEDICAL ASSEMBLIES

NORTH STAR IMAGING, INC.

An ITW Company

Corporate Headquarters:
19875 S. Diamond Lk. Rd., Ste. 10
Rogers, MN 55374 • USA
+1 763-463-5650 • SALES@4NSI.COM



INSIDE X5000

VISIT **WWW.4NSI.COM** OR **WWW.XVIEWCT.COM** FOR MORE INFORMATION

1 ##### ## Wayne – We a e cooking to move to digi al a ay at some point in the utu e & esess ch ngequipment to suppo t so I bel eve we wou d be inte e ted n ea ning mo e about you po en ial acqui it on I ve coop ed ou Qua ity Manage & Manu actu ng Manage so that they a e in the oop as we l
Ch s Eldhes ese m dire
Prge ss Manufac u ng
& Ve sion e expert & Pa t Ass stance
PEGASUS
860.633.8663 ext 107 d rect
866.462.3794[x 1
www.pegasusfc g.com

2 ##### ## Wayne
AQI wou d be inte ested in having one o mo e pa ts checked w th this capab l ty to s e what t wou d tel us
et us know i you do get th s upda ity Wayne
Thank you S ve al a e in the 24" cube ange one s 36"
S ve P out Thanks
A pha Q nc
S ve P out

3 ##### ## Wayne
hanks o checking n he type o wo k we do doesn t call o th s level o nspec ion Most o ou aw ma e ial is ba stock I know the shops hat use cas ings o gings o en need X-Ray inspection but not us
Rega ds S
Scott Iv ngs on
Ho st Enginee ng

4 ##### ## E pen ive toy – n ce hat he DECD wi l pu chase this o you
Wi l this be u ing MI undo?
Thanks K is o ch
Opto ine

5 ##### ## He o Dave – o the pa t x a sou about 44 n d amete and 1 S h gh? I m t y ng to spec out the s se scanner that s needed
I keep you and R ch nfo med on whe e we tand w h gett ng the mach ne Thanks
R cha d A au esid
P esident
O Box 7056 P ospect CT 06712

6 ##### ## o ks Wayne has some un que echno ogy at CCAT P ease con act him di ect y i you have any nte est
Gl aa W I. F nd
P esident | R&D P duc s Ac i c t Components
10 Hud on D ive | Nau ha ch NH 03077
—

7 ##### ## Hi Wayne
o us It wou d be a no b a ne We a ways get equests o the p ocess and oday it s a pa n and ve y expens ve to get done I you need any he p with ju ti icat on we should be able to he p We also have some indust y eedback on what you a e typ ca l y ook ng o n e mo o law s ze o i you need some o that in o mat on eel ee to ask
R ch Me t no
ADD Ae o

8 ##### ## Thanks Wayne I ust signed the PAS check C est bon ou ?
I ve e wo ded to ou echnology gu u o ev ew I he has an inte est I ll get back to you
Co in Coope Whi c e t

9 ##### ## Wayne we don t have u ent equi ements but I w ll h ck wi h ou team i hey see value the e
Ma c Nemeth ional

10 ##### ## We would be n e ed n 3D CT scanning on y high y oc ica ed bas s o dete m ne the exact ad al axial angula pos t on o po osi y n a we d oint that exh bi ed 2D x ay ndica ions We would hope to dete mine i the po os ty s locs ed n a egion o mate ial hat s emoved n subsequent ope at ons o i ts with n he enve ope o the n shed pa t
The pa ts a e e ect on beam we dest n date s by u tomat ve y omponents
ahe R Ma shall
475 ms
3 Thompson Road
Ea t Windso CT 06088
O) 860 623 2511 ext 109
M) 860 993 2778

11 ##### ## Wayne –
I poke with Al en Roy who unc ou enginee ing g oup n Ea t o d He said he ooked that eva t machine when we we e con ide ng b nging e ay n house o some o ou Sne ma w k The two ma n pa ts that need e ay a e he C T 56-oil nlet cove i s n a 1 oot ube) and the eapA & B bea ng houses (over 20" in diamete and about 2 eet h gh) along w th one o two PWGT ducts We subsequently dec d d not to b ing e ay n house at th s time He e che s got a handle on he m chine s capab l t es o he doe n t need any demonst ation Thanks o check ng n wi h us
Cal n
Whit e a t

Jason Dimon
North East Technical Sales Manager | North Star Imaging
19875 S. Diamond Lake Rd.
Rogers, MN 55374
Phone#: 763-200-3432
f. 763-463-5651| jdimon@4nsi.com | www.4nsi.com

The X5000 is a multi-axis high-resolution digital x-ray system for digital radiography and computed tomography inspection of small to large objects with a large format detector. The 5000 Series has innovative cabinet and manipulator designs for easy part loading of even the largest of objects.
The system can accommodate a variety of part shapes, sizes and weights. The steel/lead/steel cabinet has a fit and finish that is unparalleled in the industry and the machine tool technology used in the motion control system ensures a long trouble free life. All systems are manufactured to meet all state and federal radiation safety regulations.

COMPANY PROFILE
North Star Imaging (NSI) manufactures, sells and services state-of-the-art X-ray Imaging systems and CT equipment for industrial use. Our company also designs and develops the software applications used in our systems. NSI provides system solutions from low production or R&D, to high resolution/high production/high energy. Our standard range of products is extremely flexible to meet varied customer requirements
NSI began in the field of industrial X-ray Imaging in 1986 in Minnesota. The Company built its first Digital Radiography system in 1991 and first Computed Tomography system in 2002. From 2006, NSI widened its services and added an Inspection Services Group (ISG) offering need based consulting for anyone needing X-ray and/or computed tomography scanning. Aside from the ISG services, the company also has a Technical Service & Support team that is on call 24/7 to address immediate global customer service needs.
The corporate office is located in the city of Rogers, just outside Minneapolis, Minnesota. In 2010, the company was acquired by ITW which is a global company with 51,000 employees across 56 countries. Since then NSI has opened offices in Paris, France, Irvine, CA, High Wycombe, UK, and Suzhou, China. Worldwide NSI has approximately 100 skilled employees including application specialists, mechanical engineers, software engineers, programmers, level 3 instructors and others.
The global demand for cutting edge X-ray and CT equipment that provides advanced capabilities in an easy and intuitive user interface is what constantly pushes NSI to raise the bar with new and innovative products. The company has the widest product portfolio in the industry which keeps NSI way ahead of its competition. NSI offers seven (7) standard X-ray and CT/micro CT systems including the newly launched CXMM 50, an X-ray system designed specifically for 3D Metrology.
NSI is an ISO 9001 2008 certified company

Nikon Metrology, Inc. (Main office US) Office

Ken Gribble
12701 Grand River Avenue
Brighton, MI 48116
United States

Email sales.nm-us@nikon.com
Website http //www.nikonmetrology.com
Telephone Number: (810) 220-4360
Fax Number: (810) 220-4300

X-ray and CT Inspection for industrial and electronic applications

Nikon Metrology manufactures X-ray and Computed Tomography (CT) inspection systems that get the inside picture of complex industrial parts, by looking into the internal structure. The CT capability is used to qualify and quantify any inner or outer dimension in a smooth, non-destructive process. X-ray electronics inspection systems respond to a growing demand for flexible, detailed and affordable inspection to cope with the demands of ever-smaller electrical components and comply with tighter quality standards.

GE Inspection Technologies

Jim Bednar
Key Account Sales Manager – Radiography
GE Inspection Technologies

M (216) 218-9611
E jim.bednar@ge.com

GE imagination at work
www.ge-mcs.com

GE Sensing & Inspection Technologies GmbH
phoenix|x-ray
Niels-Bohr-Str. 7
31515 Wunstorf, Germany
Tel. +49 5031 172 0
Fax +49 5031 172 299
E-mail phoenix-info@ge.com
GE Inspection Technologies, LP
50 Industrial Park Rd
Lewistown, PA 17044, USA
Tel. 717 242 03 27
Fax 717-242-2606
E-mail phoenix-usa@ge.com

phoenix v|tome|x m
High-end tool for 3D industrial and scientific analysis tasks
Within the phoenix v|tome|x m, GE's unique 300 kV microfocus X-ray tube is for the first time available in a compact CT system for industrial process control as well as for scientific research applications. Beyond down to < 1 µm detail detectability, the system offers industry leading magnification and power at 300 kV.
GE's high dynamic DXR digital detector array and the click & measure|CT automatization functionality make it an efficient 3D tool for industrial inspection and scientific research. Due to its dual|tube configuration, detailed 3D information for an extremely wide sample range is provided from high resolution nanoCT® of low absorbing samples up to high power µCT applications such as turbine blade inspection.
Reproducible precision 3D metrology with CT
3D metrology of internal features of a valve block made of high grade aircraft aluminum
Beyond high-resolution 3D analysis in R&D and failure analysis labs, the phoenix v|tome|x m allows even 3D production control due to its powerful 300 kV tube and high dynamic detector technology for fast CT acquisition, fast velo|CT volume reconstruction and its high automation grade. Applications are, e.g., in light metal casting, electronics assembly, plastics molding as well as in turbine blade inspection
• Internal defect analysis / 3D quantitative porosity analysis
• Assembly control
• Materials structure analysis
Industrial non-destructive 3D testing

ProCon

Joachim Gudat

ProCon X-Ray GmbH
Ludwig-Erhard-Ring 6A
D-31157 Sarstedt
Tel +49 5066 98414 0
Fax +49 5066 98414 99
www.procon-x-ray.de
Joachim.Gudat@procon-x-ray.de

Exact Metrology has partnered with ProCon X-Ray GmbH, a premier German developer of x-ray inspection equipment for industrial applications and university/scientific research, and we are officially its sole representative and seller in the United States.
With high resolution focus x-ray technology these systems deliver uncompromised image quality and are widely used for nondestructive testing, failure analysis and process control.
CT-ALPHA
This system meets the most stringent demands in CT X-ray. With the CT-ALPHA, we offer the highest possible flexibility for individual customer requirements.
This space-saving system can be equipped with different X-ray powers, from 160kV for nanometer resolution through 225 kV, 320 Watts to the highest power of 300 kV, 320 Watts.
The variable focus-detector distance permits maximum contrast. As an option, the CT-ALPHA offers the Helix-Scan technique for longer objects as well as for the best avoidance of volume CT artifacts for optimum results in dimensional measurement.
Very large geometric magnifications permit real-time reconstructions

in the submicron range. The CT-ALPHA system is ideal for non-destructive testing, materials investigations and, in particular, dimensional measurements of internal structures, undercuts and free form surfaces.

Supplier	Part Size (Inches)
AlphaQ	24” cube, 36” cube
Aerospace Testing Labs	20 to 48
Alloy Specialties	48
B/E Precision	24
Birken	8 to 30
EDAC	20
Flanagan	42
GKN	3 to 48
KTI – weld	30” diameter x 10” long, 48” diameter x 60” long
LFI	3
Prospect Machine Products	43”
Satellite Tool & Machine CO	42

Contact	Supplier	Part type	Part Size (Inches)	DOD	F35	Other	In House NDT	X-ray Source	Contact	Address
Tom, Wayne	ACMT	Airfoils							Michael Polo	
	Aerospace Testing Labs	Metal & Composite	20 to 94				Yes			
	Alloy Specialties		48				No	Outsource		
	Birken		8 to 30				No	Outsource	Gary Connelly, Gary Greenberg, Tom Cardone	
	B/E Precision		24				Yes	Outsource	Glen Ford	
Wayne	EDAC		20				No	Outsource		
Wayne	Flanagan		42	Yes	?		No	Outsource	Kevin Flanagan - President, John - Quality Mgr	
Tom	GKN		3 to 79	Yes	?		Yes	No CT Xray	Andreas Anderson, Martin Thorden	
	LFI		3				Ultrasonic	No CT Xray		
	Metals Testing Company		96				Yes	No CT Xray	Robert Delisle	
Wayne	Satellite Tool & Machine CO		42	Yes	?		No	No CT Xray	Jack Lukasik - President	
Wayne	New England Airfoil Products								Donal Budds, Glenn Pac	
Wayne	Y - Addearo		Various							
Wayne	Y – AlphaQ		24" cube, 36" cube							
Wayne	Y – KTI – weld		30" diameter x 10" long, 48" diameter x 60" long							
Wayne	Y – Prospect Machine Products		43"							
Wayne	? – Phoenix									
Wayne	? - First Aviation									
Wayne	? – AeroCision									
Wayne	? – Pegasus									
Wayne	N - Jonal									
Wayne	N – Horst Engineering									
Wayne	N – Alloy Engineering									

Feature	NSI X5000	Nikon 225	Procon CT-Alpha
Machine footprint	9' x 14'	4’ x 8’	TBD
Machine weight	6000 kg	4,200 kg	2,600 kg
Approx. Part Size / Area Capability	32" x 48"	14” x 17”	19" x 24"
Part Weight Limit	113 kg	50 kg	90 kg
X-ray Source	225kV	225 kV	225 kV
Delivery schedule	10 weeks	8 weeks	16 weeks
Price	$450K	$450K	$450
Comment	Best ITC fit for part size capability	Prefer larger than 14" by 17"" sample size	Prefer larger than 19" by 24" sample size
Contact	Jason Dimon at NHS	Ken Gribble at Nikon	Joachim Godat at ProCon

GE V TOME X S240
10" x 16"
13,000 kg
24” x 35”
50 kg
140 kV
12 to 16 weeks
$450
Needs active room AC; Large Part Size/Area capability is benefit, inadequate X-ray source
Jim Bednar at GE Oil & Gas

Feature	NSI X5000	Nikon 225	Procon CT-Alpha	GE Speed Scan CT 64 V TOME X S240	Microphotonics
Machine footprint	9' x 14'	4 x 8	TBD	8 x 13 10" x 16"	TBD
Machine weight		4,200 kg	2,600 kg	13,000 kg	TBD
Approx. Part Size / Area Capability	32" x 48"	14" x 17"	19" x 24"	24" x 35"	8" x 8"
Part Weight Limit	113 kg	50 kg	90 kg	50 kg	25 kg
Smallest 3D detail			3µm	≥ 5 mm^3	
X-ray Source	225kV	225 kV	225 kV	140 kV	
X-ray Spot Size		3-225 µm	3-200 µm		
X-ray Detector		127-200 µm	138 µm	≥300 µm	
Delivery schedule	10 weeks	8 weeks	16 weeks	12 to 16 weeks	TBD
Price	$450K	$450K	$425	$450	TBD
Comment	Best ITC fit for physical dimensions and part size capability	Next best ITC fit for physical dimensions and part size capability	Good – but prefer larger than 12"x12" sample size	Machine too large for ITC; Needs active room AC; Large Part Size/Area capability is benefit, inadequate X-ray source	Restricted to smallest sample size
Origin	USA	Japan	Germany		
Contact	Jason Dimon at NHS		Andreas Kirste at ProCon	Mark Clayton at GE Digital Solutions , Jim Bednar at GE Oil & Gas	

Feature	Nikon 225	CT-ALPHA
Approx. Part Size / A	14" x 17"	19" diameter x 24 " h
Part Weight	50 kg	90 kg
Smallest 3D detail		3µm
X-ray Source	225 kV	225 kV, 300 Watts
X-ray Spot Size	3-225 µm	3-200 µm
X-ray Detector	127-200 µm	138 µm 420 x 420 mm, 2000

ProCon, CT Alpha - €425K, 16 weeks, 19"x24"

NSI, X5000 - $450K, 10 weeks, 36"48"

Nikon, 225 - $450K, 8 weeks, 14"x17"

GE, V TOME X S240, ????, ?????, 10"x16"

Note: Withheld pursuant to CGS § 52-146(r) and CGS § 1-210(b)(10) - Attorney/Client Privileged

From: Fernandez, Barbara
Sent time: 02/07/2018 03:37:49 PM
To: Molina-Rios, Carmen
Subject: FW: Conflict of interest DECD CCAT Bolton Works

Where is the CCAT RADE contract? Is it in Alchemy?

From: Bakanas, Lisa G
Sent: Wednesday, February 07, 2018 3:32 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

[redacted]

Lisa G. Bakanas
General Counsel
Department of Economic and Community Development
450 Columbus Blvd., Suite 5
Hartford, CT 06103
(860) 500-2485
(860) 500-2440
Lisa.Bakanas@ct.gov

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Please consider the environment before printing this e-mail

From: Fernandez, Barbara
Sent: Wednesday, February 07, 2018 10:03 AM
To: Bakanas, Lisa G <Lisa.Bakanas@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

[redacted]

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Wednesday, February 07, 2018 9:37 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez,

Based on your response, my conclusions are that CCAT is either not reporting commercial use, or DECD is complicit in misuse of the funding of the equipment. Of course I find it highly unlikely DECD is involved in any way in such behavior.

At this time I'd like to inquire whether DECD is he appropriate entity to investigate this misuse and has immediate plans to do so or if there is another department to which I should request to take action. As you know the commercial use of this equipment is harmful to my business.

Thank you for your prompt reply.

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Feb 2, 2018 at 1:34 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I just responded to your 1/30/2017 email. Sorry for the late response. I hope this satisfies your questions concerning the equipment.
>
> Barbara Fernandez, Director
> Business Development

Dept. of Economic and Community Dev.
450 Columbus Boulevard/South Tower,Suite 5
Hartford, CT 06103-1843
Tel: 860-500-2325
E-mail: barbara.fernandez@ct gov
Π Please consider the environment before printing

See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Friday, February 02, 2018 1:11 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine Smith@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms Fernandez, while waiting for your reply, I postponed certain investments, as it is unclear to me, to what extent CCAT is allowed to use the earlier mentioned equipment provided by the state for commercial purposes I therefore hope to see a response soon to my email from January 30th soon

For your information, another twist to this ongoing saga emerged:
CCAT IT's divison is the only division with significant revenue growth over the past 5 years Apparently reason enough for CCAT to form a new, for profit subsidiary at the end of 2017 called Novus Insight After years of state and federal support, which purpose it is to assist Connecticut companies, Novus Insight is now challenging other IT businesses in Connecticut If CCAT is allowed to do this with their IT business, what stops them from forming a for profit entity, performing technical services, like Bolton Works?

DECD has sought out CCAT to participate in several advisory boards, responsible for allocating funds to help the businesses in Connecticut It appears that CCAT cynically uses that position to propose projects for its own well being, not necessarily for the business community at large in Connecticut This is witnessed by it's behavior towards my company, the violation of the inurement prohibition for non profits, the ongoing projects with questionable merit and aforementioned forming of Novus Insight

Sincerely,

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Jan 30, 2018 at 10:24 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Thanks again, so rules for CCAT to use the Atos 3D scanner and the North Star Imaging CT scanner installed for the ITC include:
>
> 1) Company for which the equipment is used needs to be Connecticut based and needs to be a defense manufacturer
> 2) The project needs to be a demonstration project for evaluation of the technology (versus a commercial service contract)
> 3) United Technology subsidiaries are not excluded, as long rules 1 and 2 apply
>
> Other uses would violate the contract between CCAT and DECD and would violate the conditions under which the Department of Defense Office of Economic Adjustment has made the funding available to DECD
>
> Please confirm,
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Mon, Jan 29, 2018 at 5:29 PM, Fernandez, Barbara <Barbara Fernandez@ct.gov> wrote:

> Any equipment in the ITC, which is owned by the state of CT, is under the same rules.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]

Sent: Monday, January 29, 2018 5:01 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 12:42 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.
>
> As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.
>
> An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.
>
> I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct.gov
> Π Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, December 05, 2017 11:26 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
2011 Bolton Works acquires 2nd 3D scanner.
2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
2014 Bolton Works acquires 3rd 3D scanner
2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.
2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:
1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Wednesday, August 30, 2017 12:32 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez,

Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
Is it still the intention of DECD to dispose of the scanner?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford CT 06106
> Tel: 860-270-8025
> Fax: 860-707-1809
> E-mail: barbara.fernandez@ct.gov
> Π Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35
>
> The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready
>
> My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location
>
> * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment
>
> * The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above
>
> * No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered
>
> * State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses
>
> * The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work
>
> Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
> The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Thursday, May 18, 2017 8:57 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

Sincerely,

Mark Bliek - President

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409 Silver Lane
East Hartford, CT 06118

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Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> > I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
> >
> > Sent from my Windows Phone
> >
> > _____
> > From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> > Sent: 4/7/2017 12:12 PM
> > To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> > Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>

Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, thanks for addressing my questions.

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.

I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

[https://docs.google com/uc?
export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
<http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106

Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
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[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www.facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook com/boltonworks>

From:	Fernandez, Barbara
Sent time:	04/18/2017 10:01:08 AM
To:	Kollen, Bart; Gutierrez, Beatriz
Cc:	Rooslund, Tracey
Subject:	FW: Conflict of interest DECD CCAT Bolton Works
Attachments:	CCAT memo on Bolton Works 031617 doc

Below is my communications with Mr. Bliek, I have not confirmed the May 9th date. Attached is a letter from CCAt describing the situation from their perspective. As I stated to Mr. Bliek, DECD has not standing in his conversations/negotiations with CCAT. Please advise on how I should proceed. Thank you

Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax: 860-707-1809
E-mail: barbara.fernandez@ct.gov
ƒÀ Please consider the environment before printing

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, April 11, 2017 7:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, Tuesday May 9th 1.30pm would work for me.

Looking forward to meet you.

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
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>
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I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
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Phone (860) 646-3948<tel:(860)%20646-3948>
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Mark Bliek - President

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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
<http://www facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
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Barbara Fernandez,Director
Business Development

Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
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Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

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3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's

competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

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Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

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Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

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Connecticut Center for Advanced Technology, Inc.

222 Pitkin Street – Suite 101
East Hartford, CT 06108
Phone (860) 291-8832
Fax (860) 291-8874

- CONFIDENTIAL MEMORANDUM -

March 15, 2017

To: Connecticut Department of Economic and Community Development
From: Connecticut Center for Advanced Technology, Inc.
Subject: CCAT support of Bolton Works

CCAT Metrology Support to Small-Medium Enterprises (SME) in Connecticut

1. CMSCI and MVP Programs: 8 companies supported
    a. This specific manufacturing support is part of CCAT's mission to **demonstrate** manufacturing technologies to SME's and not intended to provide ongoing production capacity to compete with for-profit providers of metrology services.

2. DECD/OEA Innovation Technology Center (ITC) at CCAT
    a. Introduce and train SMEs on non-contact blue light scanning technology as was specified by Pratt & Whitney
    b. Bolton Works does not have a blue light scanner
    c. 14 companies supported in the ITC to date
    d. Bolton Works requested involvement in the ITC including the possibility of training SME's. CCAT, however, is under contract with DECD to administer the ITC with no additional budget for outside for-profit contractors. Also, access to the ITC is closely controlled and monitored due to ITAR and individual company's proprietary parts and drawings.

CCAT Support to Bolton Works

1. CCAT hosted Bolton Works as a start-up company since October 2004
2. Bolton Works has not renewed its sublease since April 2015, maintaining a status of month-to-month
3. CCAT provided technical services to Bolton Works gratis since 2004
4. CCAT included Bolton Works on a USAF contract for metrology 2015-2017
5. Bolton Works qualified for an SBIR grant while located in CCAT's AMC facility

CCAT Advanced Manufacturing Center (AMC) Subtenants

1. CCAT has supported numerous subtenants at the AMC since CCAT began leasing the space.
2. CCAT currently is in the process of expanding its occupied space at the AMC.
3. As a direct result of this planned expansion, CCAT has notified certain AMC subtenants of CCAT's intention not to renew their subleases or to terminate, as appropriate, their subleases.
4. Bolton Works as an AMC subtenant on a month-to-month lease has been provided written notification of CCAT's intention to terminate their month-to-month sublease.

From:	Smith, Catherine H
Sent time:	03/19/2017 05:34:10 PM
To:	Kollen, Bart
Subject:	FW: Conflict of interest DECD CCAT Bolton Works

FYI

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs It is now my understanding that the equipment will be offered for sale, once the demonstration period ends At that time, Bolton Works would like to have the opportunity to bid on the equipment

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Regards,

Mark Bliek - President

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409 Silver Lane
East Hartford, CT 06118

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Mobile (860) 995-3087

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Regards,

Mark Bliek - President

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409 Silver Lane
East Hartford, CT 06118

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From:	Rooslund, Tracey
Sent time:	04/28/2017 10:03:59 AM
To:	Fernandez, Barbara
Subject:	FW: Conflict of interest DECD CCAT Bolton Works

See below – Bart is unable to attend, not sure why he said he could.

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Kollen, Bart
Sent: Thursday, April 27, 2017 5:48 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

PleasE let Barbara know. Meeting with Sullivan has priority.

Sent via the Samsung GALAXY S® 5, an AT&T 4G LTE smartphone

-------- Original message --------
From: "Rooslund, Tracey" <Tracey.Rooslund@ct.gov>
Date: 4/27/17 2:20 PM (GMT-04:00)
To: "Kollen, Bart" <Bart.Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Bart – you have a conflict at 1:30 on May 9th - Insurance Reinvestment Act program meeting is scheduled at 1:00p

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Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Kollen, Bart
Sent: Tuesday, April 18, 2017 5:03 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Hi Barbara,

The memo from CCAT is very helpful. I think your offer to meet with them while still letting them know along the way, we are not a party to the discussion makes sense.

May 09 at 1:30 is open on my end, I would be happy to sit in the meeting if you would like.

Bart

Bart

Bart Kollen
Deputy Commissioner
Department of Economic and Community Development
505 Hudson Street, Hartford, CT 06106
860-270-8020 (o)
860-212-4438 (c)
www.DECD.org

Connecticut
still revolutionary

Please consider the environment before printing

From: Fernandez, Barbara
Sent: Tuesday, April 18, 2017 10:01 AM
To: Kollen, Bart <Bart.Kollen@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

Below is my communications with Mr. Bliek, I have not confirmed the May 9th date. Attached is a letter from CCAt describing the situation from their perspective. As I stated to Mr. Bliek, DECD has not standing in his conversations/negotiations with CCAT. Please advise on how I should proceed. Thank you

Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax: 860-707-1809
E-mail: barbara.fernandez@ct.gov
Π Please consider the environment before printing

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, April 11, 2017 7:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, Tuesday May 9th 1.30pm would work for me.

Looking forward to meet you.

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>

Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, thanks for addressing my questions.

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.

I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
<http://www facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your

description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Smith, Catherine H
Sent time:	01/30/2018 08:52:12 AM
To:	Fernandez, Barbara
Subject:	FW: Conflict of interest DECD CCAT Bolton Works

Trust you are handling this, but happy to discuss if that would be helpful.

Catherine Smith

Commissioner
Department of Economic and Community Development
860-500-2310 (office); 860-801-4254 (cell)
450 Columbus Blvd., Suite 5, Hartford, CT 06103
Connecticut
still revolutionary
www.DECD.org



From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Monday, January 29, 2018 12:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.

As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.

An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.

I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325

E-mail: barbara.fernandez@ct.gov
ΠΙ Please consider the environment before printing

See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, December 05, 2017 11:26 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
2011 Bolton Works acquires 2nd 3D scanner.
2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
2014 Bolton Works acquires 3rd 3D scanner
2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.
2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:

1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane

East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford CT 06106
> Tel: 860-270-8025
> Fax: 860-707-1809
> E-mail: barbara.fernandez@ct.gov
> ΠΙ Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35
>
> The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready
>
> My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location
>
> * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above

* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered

* State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.
>
> I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.
>
> 4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.
>
> Looking forward to your reply,
>
> Regards,
>
> Mark Bliek - President
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118
>
> Phone (860) 646-3948<tel:(860)%20646-3948>
> Mobile (860) 995-3087<tel:(860)%20995-3087>
>
> Mark Bliek - President
>
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118
>
> Phone (860) 646-3948
> Mobile (860) 995-3087

[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct gov<mailto:Barbara Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
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Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto mark.bliek@bolton-works.com<mailto mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

Note: Withheld pursuant to CGS § 52-146(r) and CGS § 1-210(b)(10) - Attorney/Client Privileged

From: Fernandez, Barbara
Sent time: 02/07/2018 10 02:38 AM
To: Bakanas, Lisa G
Cc: Gutierrez, Beatriz
Subject: FW: Conflict of interest DECD CCAT Bolton Works

[redacted]

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Wednesday, February 07, 2018 9:37 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez,

Based on your response, my conclusions are that CCAT is either not reporting commercial use, or DECD is complicit in misuse of the funding of the equipment. Of course I find it highly unlikely DECD is involved in any way in such behavior.

At this time I'd like to inquire whether DECD is he appropriate entity to investigate this misuse and has immediate plans to do so or if there is another department to which I should request to take action. As you know the commercial use of this equipment is harmful to my business.

Thank you for your prompt reply.

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Feb 2, 2018 at 1:34 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I just responded to your 1/30/2017 email. Sorry for the late response. I hope this satisfies your questions concerning the equipment.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct gov
> ΠΙ Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Friday, February 02, 2018 1:11 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine Smith@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Ms Fernandez, while waiting for your reply, I postponed certain investments, as it is unclear to me, to what extent CCAT is allowed to use the earlier mentioned equipment provided by the state for commercial purposes I therefore hope to see a response soon to my email from January 30th soon
>
> For your information, another twist to this ongoing saga emerged:
> CCAT IT's divison is the only division with significant revenue growth over the past 5 years Apparently reason enough for CCAT to form a new, for profit subsidiary at the end of 2017 called Novus Insight After years of state and federal support, which purpose it is to assist Connecticut companies, Novus Insight is now challenging other IT businesses in Connecticut If CCAT is allowed to do this with their IT business, what stops them from forming a for profit entity, performing technical services, like Bolton Works?
>
> DECD has sought out CCAT to participate in several advisory boards, responsible for allocating funds to help the businesses in Connecticut It appears that CCAT cynically uses that position to propose projects for its own well being, not necessarily for the business community at large in Connecticut This is witnessed by it's behavior towards my company, the violation of the inurement prohibition for non profits, the ongoing projects with questionable merit and aforementioned forming of Novus Insight
>
> Sincerely,
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**

East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Jan 30, 2018 at 10:24 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Thanks again, so rules for CCAT to use the Atos 3D scanner and the North Star Imaging CT scanner installed for the ITC include:
>
> 1) Company for which the equipment is used needs to be Connecticut based and needs to be a defense manufacturer
> 2) The project needs to be a demonstration project for evaluation of the technology (versus a commercial service contract)
> 3) United Technology subsidiaries are not excluded, as long rules 1 and 2 apply
>
> Other uses would violate the contract between CCAT and DECD and would violate the conditions under which the Department of Defense Office of Economic Adjustment has made the funding available to DECD
>
> Please confirm,
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> 409 Silver Lane
> East Hartford, CT 06118
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> On Mon, Jan 29, 2018 at 5:29 PM, Fernandez, Barbara <Barbara Fernandez@ct.gov> wrote:
>
> > Any equipment in the ITC, which is owned by the state of CT, is under the same rules.
> >
> > **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> > **Sent:** Monday, January 29, 2018 5:01 PM
> > **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> > **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> > **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
> >
> > Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?
> >
> > Regards,
> >
> > **Mark Bliek - President**
> >
> > **Bolton Works - Precision 3D Scanning**
> > 409 Silver Lane
> > East Hartford, CT 06118
> >
> > **Phone (860) 646-3948**
> > **Mobile (860) 995-3087**
> >
> > On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:
> >
> > > Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
> > >
> > > **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> > > **Sent:** Monday, January 29, 2018 12:42 PM
> > > **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> > > **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> > > **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
> > >
> > > Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.
> > >
> > > As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the

equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.

An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.

I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct.gov
> Π Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Tuesday, December 05, 2017 11:26 AM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez,
>
> This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
> Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:
>
> 2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
> 2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
> 2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
> 2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
> 2011 Bolton Works acquires 2nd 3D scanner.
> 2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
> 2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
> 2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
> 2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
> 2014 Bolton Works acquires 3rd 3D scanner
> 2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners.

UTRC however is not willing to commit to using the services and plan is shelved.
2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:
1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:
>
> > Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
> >
> > Barbara Fernandez, Director

Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax: 860-707-1809
E-mail: barbara.fernandez@ct.gov
Please consider the environment before printing

The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35

The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts

Other sites were under considering, like UConn's Technology Park but were not suitable or ready

My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above

* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered

* State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning

409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.
>
> I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.
>
> 4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.
>
> Looking forward to your reply,
>
> Regards,
>
> Mark Bliek - President
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane

East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
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Phone (860) 646-3948
Mobile (860) 995-3087

[https://docs.google com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
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[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www.facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have

the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been

involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook com/boltonworks>

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	10/08/2017 09:38:18 PM
To:	Molina-Rios, Carmen
Cc:	Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	FW: DECD Final Report and Quality Plan
Attachments:	Belcan Task 5 Project Final Report 9-30-17.doc DECD-Belcan Task 5 Project Quality Plan 9-30-17.doc 4231_001.pdf

Carmen,

As requested, I have attached the final report, quality plan and final invoice. Do you need me to mail you a signed cover letter as well? The final report includes the Belcan cover page.

Thanks,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, September 29, 2017 12:12 PM
To: Devins, Kenneth; Vesce, Jennifer D Belcan Engineering Group, Inc
Cc: Fernandez, Barbara
Subject: FW: DECD Final Report and Quality Plan

Hi Ken,

I have reviewed the attached documents. It looks good. Please submit with a signed cover letter and invoice so that I can process the final payment.

Best,

Carmen

Carmen Molina-Rios
Office of Business Development
Department of Economic and Community Development
450 Columbus Blvd., Hartford, CT 06106
P: 860.500.2314 | E: Carmen.Molinarios@ct.gov

Connecticut
still revolutionary

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, September 29, 2017 11:54 AM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: DECD Final Report and Quality Plan

Carmen,

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Thanks for your input.

Ken

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Windsor, Ct 06095
Office Phone 860-683-5367
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Belcan

INVOICE

INVOICE NO.

2270237

Belcan Engineering Group, LLC
10200 Anderson Way
Cincinnati OH 45242
(513) 891-0972

Invoice Date: 09/24/17

Week Ending **09/24/17**

Customer P.O. No. ECDM1-0000013114

Belcan Job#: 3549030

Terms: Net 60 Days

CT DECD (Dept. of Economic & Comm. Dev)
Business & Econcomic Development
505 Hudson Street, 4th Floor
Hartford CT 06106-7106 USA

Prior Invoiced: $73,425.00

Attn.: Michelle Richmond

P.O. Limit: $148,500.00

RADE 2- Task 5

STOCK COMMERCIAL

Technical Contact: Rios-Molina, Carmen

ITEM	TYPE	UNITS	RATE	AMOUNT
Technology Project Manager	Straight Time	105.00	75.00	7,875.00

PLEASE REMIT TO:
Belcan Engineering Group, LLC
Lockbox 771430
1430 Solutions Center
Chicago IL 60677-1004

PLEASE REMIT THIS AMOUNT-> $ 7,875.00
IN U.S. DOLLARS THANK YOU

ORIGINAL

Belcan

Engineering Better Outcomes | belcan.com

State of CT Rade 2 – Task 5
Project Status Report

09/30/2017







Belcan Project No.: 354-9030
Customer P.O. No.: ECDM1-0000013114
Start Date: 9/15/2016
Due Date: 9/30/2017

Prepared for: Carmen Molina-Rios
State of Connecticut, DECD
505 Hudson Street, Hartford, CT 06106
Phone: 860-270-8234
E-mail: carmen.molinarios@ct.gov

Prepared By: Ken Devins
Belcan Engineering
175 Addison Road, Windsor, Ct 06095
Phone: 860-683-5367
E-mail: kdevins@belcan.com

Belcan Proprietary & Confidential

State of CT Department of Econimic and Commercial Development
RADE 2 – Task 5 Project Status Report

Final Status

Task 5 – Manufacturing Innovation			
Increase CT Companies' cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the Ct supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.			
Sub Tasks:			
5.1 Hire technical coordinator	Complete 11/15/16		Belcan
5.2 Acquire and/or lease machinery, equipment	Complete 11/15/16		CCAT
5.3 Installation of machinery and equipment	Complete 11/15/16		CCAT
5.4 Perform outreach to supply chain	Initial survey 1/31/16, follow-up ongoing		DECD / Belcan
5.5 Identify training needs	GOM ATOS Complete 11/15/16		CCAT
5.6 Deliver training (if/when appropriate)	Complete 12/7/16		CCAT
5.7 Process Improvement project implementation	TBD		Belcan /CCAT /Draper
5.8 Analyze/report on manufacturing innovation	Preliminary scheduled for 7/20/17		Draper
Deliverable:			
• CT Innovation Technology Center is established, operational, and staffed	Complete 12/15/16		CCAT
• Suppliers are aware of ITC and its capabilities	Initial survey 1/31/16, follow-up ongoing		DECD / Belcan
• Participating companies' staff trained on new processes and technologies	1/11/2017		Draper / CCAT
• Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies	Ongoing		Belcan /CCAT /Draper
• Manufacturing Technology Innovation Needs Statement	Computed Tomography		Belcan /CCAT
Metrics:			
• A minimum of 20 supply chain companies participate	23	Structured Light and X-ray	Draper - 4, CCAT - 19
• A minimum of 10 projects implemented	17	Structured Light	Draper 13, CCAT 4
• Available hours used on the equipment by suppliers	1700		CCAT
• Number of projects	28		Belcan /CCAT /Draper
• Equipment manhours hours used	3035	2630 SLS and 405 X-ray	CCAT
• Equipment ordered by suppliers		See Draper reports	Draper
• Number of processes implementing by supplier in their facility		See Draper reports	Draper

Please note, results in terms of supplier participation and projects implemented exceeded requirements with 23 suppliers participating and 17 projects implemented vs a requirement of 20 suppliers and 10

Data subject to proprietary markings statement on first page

projects.

Sustainability Plan

DECD requested that an investigation be performed into possible approaches that could assure the ability to sustain the ITC support function upon completion of Task 5. In response to this request CCAT provided Belcan with a proposed rationale for forecasting ITC sustainability costs which are summarized below.

[redacted]

Marketing Plan

In order to promote the ITC capabilities and its synergy with CCAT a marketing brochure was prepared and distributed widely to Connecticut suppliers working DOD projects. This was followed up with conference calls with interested suppliers. The original effort applied only to Structured Light Scanning (SLS) using the

GOM ATOS equipment. Future Marketing brochures will include the recently acquired NSI X5000 X-Ray scanner as well.

The original SLS brochure content is shown below for reference.

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The State of Connecticut is looking for Connecticut defense manufacturers who want to evaluate if Structured Light Scanning (SLS) technology works for them. CT manufacturers can have a Demonstration Project performed at the newly constructed ITC. The ITC is sponsored by the Department of Defense Office of Economic Adjustment and the Connecticut Department of Economic and Community Development. The ITC is 1000 ft^2 of lab space managed by the Connecticut Center for Advanced Technology Inc. (CCAT) in East Hartford. There is no cost to participate.

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The GOM ATOS Scanbox 5108 is an optical 3D measuring machine developed for quality control in larger production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. (GOM Website)

CCAT personnel will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so that results from the new technology can be compared directly to results from the current technology being used by the supplier.

WHY DO AN SLS DEMONSTRATION PROJECT AT THE ITC?

Mechanical measuring machines capture data in a point-based or linear manner while optical 3D coordinate measuring systems provide full-field deviations of 3D actual coordinates and CAD data

- The GOM ATOS machine is one example of optical scanning technology
- Compare new technology capabilities to current technology capabilities
- Evaluate impact on effectiveness, efficiency and productivity of new technology
- A Demonstration Project is FREE to CT defense manufacturers
- A Non-Disclosure Agreement (NDA) can be executed to protect the manufacturer's process knowledge. CCAT is an ITAR controlled facility.

HOW DO I APPLY? Complete the simple on-line application by going to the ITC Assistance Application and checking the box for "Structured light scanning/reverse engineering", or contact Mr. Wayne Sumple at CCAT or Mr. Ken Devins at Belcan.

Company demonstration projects that followed the process outlined below provided DECD with supporting technical data resulting from the assistance and project which Belcan reporting in the status reports.

DEMONSTRATION PROJECT PROCESS

1. CT manufacturer to sign Non-Disclosure Agreement (NDA)
2. CT manufacturer to sign Export Control Intake Certification (ECIC)
3. CT manufacturer to complete Assistance Application for Structured Light Scanning

a. Describe part(s) to be scanned
   - I. Name of part
   - II. # of parts
   - III. Special handling instructions

b. STRUCTURED LIGHT SCANNING (SLS)
   - I. Identify data to be gathered during demonstration project
     - I. Time to process
     - II. Cost to process material consumed during process
     - III. Metrology criteria – list of specific measurements or dimensional values required for evaluation
     - IV. Comparison of new measurements or dimensional values generated in the ITC to existing data taken by the SME at their facility
     - V. Shipping/receiving instructions

c. Provide format for report data

d. Identify how part(s) will be delivered to/from ITC
   - I. Supplier to hand carry to ITC
   - II. Supplier to ship to ITC

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Participating Suppliers at CCAT / ITC

Ct Tool (Whitcraft, LLC)	[redacted]	Investigating	CCAT	[redacted]
EDAC		Investigating	CCAT	
Alpha Q		Investigating	CCAT	
Polamer		Investigating	CCAT	
Birken Manufacturing		Investigating	CCAT	
Reno Machine Company, Inc.		Investigating	CCAT	
Vista International Soundstik		Investigating	CCAT	
Aerospace Alloys		Not interested	CCAT	
Barnes Aerospace		Not interested	CCAT	
Gros-ite (EDAC)		Not interested	CCAT	
Habco Industries		Not interested	CCAT	

Supplier Name	Project Type	Status	Project Lead	Follow Up/Notes
GKN Aerospace	[redacted]	ITC & Supplier Complete	CCAT	[redacted]
Flanagan Industries		ITC Complete - Awaiting supplier conclusions	CCAT	
Satellite Tool & Manufacturing		ITC Complete - Awaiting supplier conclusions	CCAT	
Mallory Industries		ITC & Supplier Complete	CCAT	
New England Airfoil Products		Active	CCAT	
Phoenix Manufacturing		Active	CCAT	
Hubbel		~~Active~~ Withdrawn	CCAT	
Addaero		Active	CCAT	
Prospect Machine Products		Active	CCAT	
Aero Gear, Inc.		Active	CCAT	

Participating Suppliers at Draper

Supplier Name	Project Type	Status	Project Lead	Project Description
Deburring House Inc.	[redacted]	Completed	Draper	[redacted]
GKN Aerospace		Completed	Draper	
Habco Industries		Completed	Draper	
Jonal Laboratories, Inc.		Completed	Draper	
Admill Machine		Inactive	Draper	
Avalon Advanced Technologies & Repair Inc.		Inactive	Draper	
CAM Group LLC		Inactive	Draper	
Flanagan Industries (EDAC)		Inactive	Draper	
Polar Corporation		Withdrawn	Draper	

RADE 2 Task 5				
PSA Number:	16ECD0005PS (2017 24850)			
Contractor Name:	Belcan Engineering Group, LLC.			
Contract Period:	09/15/16 to 09/30/17			
Contract Amount:	$148,500			
Scope of Work				**Comment**
#	**Activity**	**Met**	**Not Met**	
1	Provide dedicated resource to act as a project manager	X		
2	Assist DECD in managing DOD OEA RADE 2 Task 5 - the State of CT Innovation Technology Center	X		
3	Work with DECD, CCAT and Draper Labs in the implementation of a detailed project plan which includes milestones, resources budget and equipment	X		
4	Work with Technology Advisory (Draper Labs) to identify and implement technological breakthroughs leading to improved competitiveness		X	This task was performed through the work of Draper Labs and Belcan services were not needed.
5	Provide technical coordination for DECD by oversight, milestone, reporting, and coordination of the F35 under	X		
6	Supplement resources with technical team who has experience with military and commercial platforms for the CT aerospace supply chain		X	The supplement resources were not needed.
7	Engage OEM's who have CT suppliers on the F35	x		
8	Create a sustainability plan for the State of CT Innovation Technology Center	x		
9	Monitor CCAT and Draper Labs activities to ensure that the deliverables, tasks, and milestones outlined in RADE 2 proposal are met	X		
10	Provide quarterly reports to DECD on the status of CCAT's and Draper's deliverables	x		
11	Collect data from Draper and CCAT and report on the individual projects with specific business needs, market conditions, and technological advancements to meet strategic objectives and grant mission requirements	x		
12	Develop and implement a marketing plan for the Innovation Technology Center	x		
13	Making frequent presentations to industry, government leaders (state/Federal) and stakeholders	x		Performed in conjunction with CCAT & Draper
14	Maintaining frequent formal and informal communications with customers, technology experts and partners to present status of projects and reporting on program progress to industry leaders, clients, government official and federal agencies and;	x		
15	Perform other related activities as requested by DECD	x		
Deliverables				
	Provide DECD with reports detailing technology advancement in closing supporting technical data resulting from the assistance and project.	x		This was part of the weekly and monthly status reports
	Marketing Plan for the ITC surrounding advancements achieved during the program	x		
	Sustainability plan for the ITC	x		
	Monthly reports, including but not limited to project implementation statuspipeline with prospects, status, and next step for each prospect.	x		

Data subject to proprietary markings statement on first page

Data subject to proprietary markings statement on first page

Project Quality Plan

Refer to Project Quality Plan Procedure

Project Title:	State of Ct RADE 2 Task 5 Project Manager	**Project No.:**	354-9030	
Client:	Connecticut Department of Community and Economic Development (DECD)	**Date:**	9/30/17	**Rev:**
Author:	Ken Devins	**Proj. Mgr.:**	Ken Devins	

1. Approach.

A description of the technical approach to this project is presented as indicated below:

X	Belcan Proposal	PO # ECDM1- (Proposal Number)	0000013114
X	Detailed Approach	State of CT DECD Contract (File Name)	(attached) (File Location)

2. Resources.

Belcan Team Members:

Name	*Role*	*Phone*	*E-Mail*
Ken Devins	Prime Contact & Tech Approval	860-683-5367	kdevins@belcan.com
Ryan Watson	Financial Appvl.		rewatson@belcan.com
Jennifer Vesce	PM / Admin	860-683-5481	jdvesce@belcan.com

Client Team Members:

Name	*Role*	*Phone*	*E-Mail*
Carmen Molina-Rios	Prime Contact & Tech Approval	860-270-8234	carmen.molinarios@ct.gov
Adam Osmond	Financial Appvl		

Software:	*List Type*	*Rev. #*
Analytical Programs (ANSYS, PATRAN, etc.)	None	
Design/Drafting Programs (UG, AUTOCAD, etc.)		
Other		

Specification Requirements: *Refer to Proposal and/or Project Directives for this project*.

Other Resources:

3. Schedule. Ref: *Schedule Development Procedure*.

A schedule for this project is presented as indicated below:

☐ Gantt Chart _____ (File Name) _____ (File Location)

☒ Milestones

Milestone Description	Milestone Date
Complete Contract Requirements	9/30/17

☐ Level of Effort (Schedule determined upon customer request to complete a task)

4. Status Reporting. Ref: *Project Status Report Procedure*

Format:

- [X] Belcan Standard
- [ ] Client-Specific _____
- [X] Other

Frequency:

- [X] Weekly
- [ ] Bi-weekly
- [X] Monthly (min. requirement)

5. Deliverable(s):

See Contract – Attachment A				

6. Electronic Data Management Requirements. Ref. *Open Project Document Control and Electronic Data Management for Projects Procedures*.

[X] All Data will be stored on **Belcan's** Network in the project directory.

[ ] Project Management Data stored on the Belcan Network in the project directory and Technical Data stored on the **Customer's** Network.
File path where the data will be stored: _____

7. Nonconformance Handling. Ref. *Project Nonconformance Handling Procedure*.

A nonconformance related to the product Belcan delivers to its customers can surface any time during the course of the project and are typically identified internally through the inspection process or externally by the customer

There are two types of nonconformances:

a) Product Nonconformance – errors that affects form, fit and/or function of the product after product delivery
b) Fundamental Nonconformance - errors or systemic problems found internally prior to delivery of product, such as:

- Repetitive mistakes
- Unqualified personnel
- Repetitive failure to follow directives on the project or direction from technical lead
- Technical flaws in accepted best practices
- Promised resources not available to complete the project

All nonconformances will be documented on the *Project Nonconformance Description and Resolution Form*.

The nonconforming product is marked and segregated per the following guidelines below:

Electronic Files	A copy of the nonconforming file is stored in the project directory within the established nonconformance subdirectory. The file name acts as its unique identifier.
Hard Copy Files	The file is marked with an "NC" written on the front page of the document and is segregated from existing working project files. It must be traceable to the project number.
Physical Product	The product is marked with an "NC" tag (*Physical Product Nonconformance Tag Form*) affixed to the object and segregated by Project Manager's discretion.

8. Contract Deliverable Results

Belcan has performed the function of technology consultant and project manager for DECD supporting DOD OEA RADE Task 5. This work defined in Attachment A of the contract has been successfully completed. Specific tasks and their resolution are as follows:

1) A dedicated resource was assigned by Belcan to act as project manager.
2) The project manager assisted DECD in managing the State of Connecticut Innovation Technology Center (ITC) located on the UTRC campus in the Connecticut Center for Advanced Technology (CCAT) facility.
3) The project manager successfully worked with DECD, CCAT and Draper Labs in executing a project plan accomplishing the Task 5 objectives. Budgets for CCAT and Draper were managed by DECD under separate contracts.
4) The project manager worked with the Technology Advisor (Draper Labs) to identify and implement technological breakthroughs intended to improve competitiveness for Defense manufactures in Connecticut. The project manager participated in supplier visits and 3rd party audits with Draper and CCAT. Separate Draper reports cover details of technology insertion as defined in their contract with DECD.

5) The project manager provided technical coordination for DECD by oversight and monthly reports specifying progress made by Belcan, CCAT and Draper toward successful completion of Task 5 goals focused on the F35 and Department of Defense supply chain in Connecticut.
6) Belcan supplemental resources were not needed to support the technical teams.
7) Pratt & Whitney (the F35 OEM) and DOD suppliers were engaged in projects at the ITC.
8) The project manager worked with CCAT to prepare a sustainability plan for continued utilization of the structured light and x-ray scanners after Task 5 funding is no longer available.
9) The project manager provided monthly progress reports to DECD providing visibility into progress at Belcan, Draper and CCAT toward completion of RADE Task 5 Deliverables, tasks and milestones.
10) Monthly reporting was substituted for quarterly reports to DECD on Belcan, Draper and CCAT deliverables. Initial weekly reports transitioned to monthly reports as the plan execution evolved.
11) The monthly reports included lists of individual suppliers and projects as they developed. By the end of the Belcan contract the goals for number of suppliers participating and projects completed had exceeded the Task 5 requirements.
12) The project manager worked with CCAT to develop a marketing plan which included the electronic distribution of a marketing brochure, personal and phone contact with targeted suppliers encouraging development of projects using the ITC facility.
13) While the project manager was prepared to make presentations to industry, government leaders and stakeholders the opportunity never materialized.
14) The project manager had frequent formal and informal communications with interested suppliers, structured light and x-ray technology experts in expanding the ITC exposure and capabilities.
15) The project manager responded to other DECD requests such as the participation in the 3rd party audit of Task 5 with CREC.
16) Monthly reports from the project manager to DECD were the mechanism for delivering project implementation status, as well as the marketing and sustainability plans for the ITC. The Draper contract calls for a separate sustainability plan which was not provided to Belcan for review.

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Sent time:	09/29/2017 12:11:35 PM
To:	Devins, Kenneth <kdevins@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
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Engineering Better Outcomes | belcan.com

State of CT Rade 2 – Task 5
Project Status Report

09/30/2017







Belcan Project No.: 354-9030
Customer P.O. No.: ECDM1-0000013114
Start Date: 9/15/2016
Due Date: 9/30/2017

Prepared for: Carmen Molina-Rios
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505 Hudson Street, Hartford, CT 06106
Phone: 860-270-8234
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State of CT Department of Econimic and Commercial Development
RADE 2 – Task 5 Project Status Report

Final Status

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   - II. Supplier to ship to ITC

Data subject to proprietary markings statement on first page

Participating Suppliers at CCAT / ITC

Ct Tool (Whitcraft, LLC)	[redacted]	Investigating	CCAT	[redacted]
EDAC		Investigating	CCAT	
Alpha Q		Investigating	CCAT	
Polamer		Investigating	CCAT	
Birken Manufacturing		Investigating	CCAT	
Reno Machine Company, Inc.		Investigating	CCAT	
Vista International Soundstik		Investigating	CCAT	
Aerospace Alloys		Not interested	CCAT	
Barnes Aerospace		Not interested	CCAT	
Gros-ite (EDAC)		Not interested	CCAT	
Habco Industries		Not interested	CCAT	

Belcan

State of CT - RADE 2 – Task 5

Supplier Name	Project Type	Status	Project Lead	Follow Up/Notes
GKN Aerospace	[redacted]	ITC & Supplier Complete	CCAT	[redacted]
Flanagan Industries		ITC Complete - Awaiting supplier conclusions	CCAT	
Satellite Tool & Manufacturing		ITC Complete - Awaiting supplier conclusions	CCAT	
Mallory Industries		ITC & Supplier Complete	CCAT	
New England Airfoil Products		Active	CCAT	
Phoenix Manufacturing		Active	CCAT	
Hubbel		~~Active~~ Withdrawn	CCAT	
Addaero		Active	CCAT	
Prospect Machine Products		Active	CCAT	
Aero Gear, Inc.		Active	CCAT	

Participating Suppliers at Draper

Supplier Name	Project Type	Status	Project Lead	Project Description
Deburring House Inc.	[redacted]	Completed	Draper	[redacted]
GKN Aerospace		Completed	Draper	
Habco Industries		Completed	Draper	
Jonal Laboratories, Inc.		Completed	Draper	
Admill Machine		Inactive	Draper	
Avalon Advanced Technologies & Repair Inc.		Inactive	Draper	
CAM Group LLC		Inactive	Draper	
Flanagan Industries (EDAC)		Inactive	Draper	
Polar Corporation		Withdrawn	Draper	

RADE 2 Task 5				
PSA Number:	16ECD0005PS (2017 24850)			
Contractor Name:	Belcan Engineering Group, LLC.			
Contract Period:	09/15/16 to 09/30/17			
Contract Amount:	$148,500			
Scope of Work				**Comment**
#	**Activity**	**Met**	**Not Met**	
1	Provide dedicated resource to act as a project manager	X		
2	Assist DECD in managing DOD OEA RADE 2 Task 5 - the State of CT Innovation Technology Center	X		
3	Work with DECD, CCAT and Draper Labs in the implementation of a detailed project plan which includes milestones, resources budget and equipment	X		
4	Work with Technology Advisory (Draper Labs) to identify and implement technological breakthroughs leading to improved competitiveness		X	This task was performed through the work of Draper Labs and Belcan services were not needed.
5	Provide technical coordination for DECD by oversight, milestone, reporting, and coordination of the F35 under	X		
6	Supplement resources with technical team who has experience with military and commercial platforms for the CT aerospace supply chain		X	The supplement resources were not needed.
7	Engage OEM's who have CT suppliers on the F35	x		
8	Create a sustainability plan for the State of CT Innovation Technology Center	x		
9	Monitor CCAT and Draper Labs activities to ensure that the deliverables, tasks, and milestones outlined in RADE 2 proposal are met	X		
10	Provide quarterly reports to DECD on the status of CCAT's and Draper's deliverables	x		
11	Collect data from Draper and CCAT and report on the individual projects with specific business needs, market conditions, and technological advancements to meet strategic objectives and grant mission requirements	x		
12	Develop and implement a marketing plan for the Innovation Technology Center	x		
13	Making frequent presentations to industry, government leaders (state/Federal) and stakeholders	x		Performed in conjunction with CCAT & Draper
14	Maintaining frequent formal and informal communications with customers, technology experts and partners to present status of projects and reporting on program progress to industry leaders, clients, government official and federal agencies and;	x		
15	Perform other related activities as requested by DECD	x		
Deliverables				
	Provide DECD with reports detailing technology advancement in closing supporting technical data resulting from the assistance and project.	x		This was part of the weekly and monthly status reports
	Marketing Plan for the ITC surrounding advancements achieved during the program	x		
	Sustainability plan for the ITC	x		
	Monthly reports, including but not limited to project implementation statuspipeline with prospects, status, and next step for each prospect.	x		

Data subject to proprietary markings statement on first page

Data subject to proprietary markings statement on first page

Project Quality Plan

Refer to Project Quality Plan Procedure

Project Title:	State of Ct RADE 2 Task 5 Project Manager	**Project No.:**	354-9030	
Client:	Connecticut Department of Community and Economic Development (DECD)	**Date:**	9/30/17	**Rev:**
Author:	Ken Devins	**Proj. Mgr.:**	Ken Devins	

1. Approach.

A description of the technical approach to this project is presented as indicated below:

X	Belcan Proposal	PO # ECDM1- (Proposal Number)	0000013114
X	Detailed Approach	State of CT DECD Contract (File Name)	(attached) (File Location)

2. Resources.

Belcan Team Members:

Name	*Role*	*Phone*	*E-Mail*
Ken Devins	Prime Contact & Tech Approval	860-683-5367	kdevins@belcan.com
Ryan Watson	Financial Appvl.		rewatson@belcan.com
Jennifer Vesce	PM / Admin	860-683-5481	jdvesce@belcan.com

Client Team Members:

Name	*Role*	*Phone*	*E-Mail*
Carmen Molina-Rios	Prime Contact & Tech Approval	860-270-8234	carmen.molinarios@ct.gov
Adam Osmond	Financial Appvl		

Software:	*List Type*	*Rev. #*
Analytical Programs (ANSYS, PATRAN, etc.)	None	
Design/Drafting Programs (UG, AUTOCAD, etc.)		
Other		

Specification Requirements: *Refer to Proposal and/or Project Directives for this project*.

Other Resources:

3. Schedule. Ref: *Schedule Development Procedure*.

A schedule for this project is presented as indicated below:

☐ Gantt Chart _____ (File Name) _____ (File Location)

☒ Milestones

Milestone Description	Milestone Date
Complete Contract Requirements	9/30/17

☐ Level of Effort (Schedule determined upon customer request to complete a task)

4. Status Reporting. Ref: *Project Status Report Procedure*

Format:

- [X] Belcan Standard
- [ ] Client-Specific _____
- [X] Other

Frequency:

- [X] Weekly
- [ ] Bi-weekly
- [X] Monthly (min. requirement)

5. Deliverable(s):

See Contract – Attachment A				

6. Electronic Data Management Requirements. Ref. *Open Project Document Control and Electronic Data Management for Projects Procedures*.

[X] All Data will be stored on **Belcan's** Network in the project directory.

[ ] Project Management Data stored on the Belcan Network in the project directory and Technical Data stored on the **Customer's** Network.
File path where the data will be stored: _____

7. Nonconformance Handling. Ref. *Project Nonconformance Handling Procedure*.

A nonconformance related to the product Belcan delivers to its customers can surface any time during the course of the project and are typically identified internally through the inspection process or externally by the customer

There are two types of nonconformances:

a) Product Nonconformance – errors that affects form, fit and/or function of the product after product delivery
b) Fundamental Nonconformance - errors or systemic problems found internally prior to delivery of product, such as:

- Repetitive mistakes
- Unqualified personnel
- Repetitive failure to follow directives on the project or direction from technical lead
- Technical flaws in accepted best practices
- Promised resources not available to complete the project

All nonconformances will be documented on the *Project Nonconformance Description and Resolution Form*.

The nonconforming product is marked and segregated per the following guidelines below:

Electronic Files	A copy of the nonconforming file is stored in the project directory within the established nonconformance subdirectory. The file name acts as its unique identifier.
Hard Copy Files	The file is marked with an "NC" written on the front page of the document and is segregated from existing working project files. It must be traceable to the project number.
Physical Product	The product is marked with an "NC" tag (*Physical Product Nonconformance Tag Form*) affixed to the object and segregated by Project Manager's discretion.

8. Contract Deliverable Results

Belcan has performed the function of technology consultant and project manager for DECD supporting DOD OEA RADE Task 5. This work defined in Attachment A of the contract has been successfully completed. Specific tasks and their resolution are as follows:

1) A dedicated resource was assigned by Belcan to act as project manager.
2) The project manager assisted DECD in managing the State of Connecticut Innovation Technology Center (ITC) located on the UTRC campus in the Connecticut Center for Advanced Technology (CCAT) facility.
3) The project manager successfully worked with DECD, CCAT and Draper Labs in executing a project plan accomplishing the Task 5 objectives. Budgets for CCAT and Draper were managed by DECD under separate contracts.
4) The project manager worked with the Technology Advisor (Draper Labs) to identify and implement technological breakthroughs intended to improve competitiveness for Defense manufactures in Connecticut. The project manager participated in supplier visits and 3rd party audits with Draper and CCAT. Separate Draper reports cover details of technology insertion as defined in their contract with DECD.

5) The project manager provided technical coordination for DECD by oversight and monthly reports specifying progress made by Belcan, CCAT and Draper toward successful completion of Task 5 goals focused on the F35 and Department of Defense supply chain in Connecticut.
6) Belcan supplemental resources were not needed to support the technical teams.
7) Pratt & Whitney (the F35 OEM) and DOD suppliers were engaged in projects at the ITC.
8) The project manager worked with CCAT to prepare a sustainability plan for continued utilization of the structured light and x-ray scanners after Task 5 funding is no longer available.
9) The project manager provided monthly progress reports to DECD providing visibility into progress at Belcan, Draper and CCAT toward completion of RADE Task 5 Deliverables, tasks and milestones.
10) Monthly reporting was substituted for quarterly reports to DECD on Belcan, Draper and CCAT deliverables. Initial weekly reports transitioned to monthly reports as the plan execution evolved.
11) The monthly reports included lists of individual suppliers and projects as they developed. By the end of the Belcan contract the goals for number of suppliers participating and projects completed had exceeded the Task 5 requirements.
12) The project manager worked with CCAT to develop a marketing plan which included the electronic distribution of a marketing brochure, personal and phone contact with targeted suppliers encouraging development of projects using the ITC facility.
13) While the project manager was prepared to make presentations to industry, government leaders and stakeholders the opportunity never materialized.
14) The project manager had frequent formal and informal communications with interested suppliers, structured light and x-ray technology experts in expanding the ITC exposure and capabilities.
15) The project manager responded to other DECD requests such as the participation in the 3rd party audit of Task 5 with CREC.
16) Monthly reports from the project manager to DECD were the mechanism for delivering project implementation status, as well as the marketing and sustainability plans for the ITC. The Draper contract calls for a separate sustainability plan which was not provided to Belcan for review.

From:	Molina-Rios, Carmen
Sent time:	01/17/2017 07:45:21 AM
To:	Fernandez, Barbara
Subject:	FW: GOM ATOS Sustainment

Fyi
Sent from my Windows Phone

From: Devins, Kenneth
Sent: 1/16/2017 1:19 PM
To: Molina-Rios, Carmen
Subject: GOM ATOS Sustainment

Carmen,

Please see Wayne's proposal for continuing support of the ITC owned equipment after Task 5. What are your thoughts?

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Monday, January 16, 2017 12:19 PM
To: Devins, Kenneth
Cc: Don Balducci
Subject: GOM ATOS

Ken – If DECD turns the GOM/ATOS machine over to CCAT after the OEA ITC money runs out, we will just add it to our "toolbox" of technologies here at the AMC. In return, CCAT will offer the GOM/ATOS as a structured light scanning/reverse engineering technology under the DECD MTIP Technology Access program. It will become a new task under the current CT Manufacturing Supply Chain Initiative (CMSCI-9) contract between DECD and CCAT.

I don't anticipate a cost associated with adding this as a new task to CMSCI-9.

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

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Note: Attachment withheld pursuant to CGS § 1-210(b)(1)

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	11/28/2016 09:27:28 AM
To:	Wayne Sumple <wsumple@ccat.us>
Cc:	Molina-Rios, Carmen
Subject:	FW: ITC Procedures and Guidelines
Attachments:	Procedures-Guidelines ITC.docx

Wayne,

I reviewed the attached Procedures & Guidelines document and have some suggestions for clarification.

1) Provide definitions for the acronyms OEM, SME and SLS,
2) Activate the link in the Technology section,
3) Is the supplier base applicable to the F35 aircraft or F135 propulsion system?

Ken

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 23, 2016 3:11 PM
To: 'Wayne Sumple'; Devins, Kenneth
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves; Fernandez, Barbara
Subject: RE: ITC Procedures and Guidelines

Hi Wayne and Ken,

Please see the revised Procedures and Guidelines. The main changes is the reference of Pratt & Whitney. Although they were a partner in addressing the issues and need for the specific technologies for P&W supply chain, this effort should support any supplier on the F35 for example Rolls Royce, etc. In addition, the other changes reflected were based on the earlier version of the procedures and guidelines that were worked on by Dan Lessard and CCAT staff.

Please review this next version and note that the yellow sections may or may not pertain based on the technology, but we need to be as explicit as possible. Ken and Wayne please weigh in on these sections and rework the process flow chart. .

Thank you. Happy Thanksgiving!

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, November 22, 2016 4:32 PM
To: Molina-Rios, Carmen; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: ITC Procedures and Guidelines

Carmen/Ken,

Here is the ITC Procedures and Guidelines document that CCAT will be following.

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

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Note: Withheld pursuant to CGS § 1-210(b)(1)

9 - Pages

Note: Attachment withheld pursuant to CGS § 1-210(b)(1)

From:	Molina-Rios, Carmen
Sent time:	08/25/2017 03:44:59 PM
To:	Fernandez, Barbara
Subject:	FW: ITC Procedures and Guidelines
Attachments:	Procedures-Guidelines ITC Rev G.docx

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Monday, November 28, 2016 4:04 PM
To: 'Devins, Kenneth' <kdevins@belcan.com>
Cc: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>; Don Balducci <dbalducci@ccat.us>; John Quitter <jquitter@ccat.us>
Subject: RE: ITC Procedures and Guidelines

Ken – Attached is the latest version with corrections from you, Carmen and myself. Revisions in Track Changes.

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Monday, November 28, 2016 9:27 AM
To: Wayne Sumple
Cc: Molina-Rios, Carmen (Carmen.MolinaRios@ct.gov)
Subject: FW: ITC Procedures and Guidelines

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I reviewed the attached Procedures & Guidelines document and have some suggestions for clarification.

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Ken

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 23, 2016 3:11 PM
To: 'Wayne Sumple'; Devins, Kenneth
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves; Fernandez, Barbara
Subject: RE: ITC Procedures and Guidelines

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Please review this next version and note that the yellow sections may or may not pertain based on the technology, but we need to be as explicit as possible. Ken and Wayne please weigh in on these sections and rework the process flow chart. .

Thank you. Happy Thanksgiving!

Carmen

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Sent: Tuesday, November 22, 2016 4:32 PM
To: Molina-Rios, Carmen; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: ITC Procedures and Guidelines

Carmen/Ken,

Here is the ITC Procedures and Guidelines document that CCAT will be following.

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

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Note: Withheld pursuant to CGS § 1-210(b)(1)

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From: Molina-Rios, Carmen
Sent time: 02/08/2017 04:56:27 PM
To: Fernandez, Barbara
Subject: FW: ITC Sustainability Plan

?????

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Wednesday, February 08, 2017 4:41 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.
Subject: ITC Sustainability Plan

Carmen,

I met with our Belcan supplier team to discuss options for technology insertion business models that can be sustained without state or federal financial support. The only alternative that we have seen successful is when large suppliers such as GKN or prime contractors such as PW, UTC or Lockheed Martin provide support and resources. A good example of this is the teaming of the non-profit CCAT with GKN in acquiring and operating the Zimmerman composite machining system. In this case there is a potential to gain support from GKN to enhance the effectiveness of this composite equipment at CCAT with onsite inspection capability with both the GOM ATOS and the proposed Computed Tomography x-ray scanner.

These types of efforts are usually targeted toward support of a specific product application and reflect a synergy with the larger companies strategic business plan. In this regard PW is already working with their aerospace industry supplier base, but could benefit from utilizing CCAT and the ITC equipment as an additional resource.

Regards,
Ken
Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Monday, February 06, 2017 12:28 PM
To: Devins, Kenneth
Cc: Forsyth, Jean M.; Fernandez, Barbara
Subject: ITC Sustainability Plan

Hi Ken,

After discussing the ITC sustainability plan with Barbara, we would like you to work with your Belcan network and get us models throughout the country where organizations and centers have similar programming of technology insertions and have sustained the centers without state and federal support. The purpose of this is for us to understand best practices throughout the country. We believe CT's main customer is the aerospace industry. You and I have talked at great length about this deliverable and you have worked with CCAT on their proposal. However, we really need to have a broader perspective on best practices where this is working without government support or a hybrid.

For our next call on Monday, please get me a summary of your findings and Belcan's recommendation on what you believe in your experiences can work in CT. At that point we will have the best practice summary and CCAT's completed proposal allowing us to make a more informed decision to share with the MIF board and DoD OEA.

Please let me know if you have any questions or thoughts.

Thanks,

Carmen

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	02/10/2017 01:04:30 PM
To:	Molina-Rios, Carmen
Subject:	FW: ITC Sustainment beyond Task 5
Attachments:	CCAT ITC Equipment Proposal 021017.pdf

Carmen,

Please see the attached updated sustainment proposal from CCAT which includes cost information and allocated space at CCAT for installation of the CT X-ray machine.

Let me know if this meets your requirements.

Thanks,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: John Glidden [mailto:jglidden@ccat.us]
Sent: Friday, February 10, 2017 12:00 PM
To: Devins, Kenneth
Subject: RE: ITC Sustainment beyond Task 5

Ken,

Per your note below, we put a sustainment model together for both the GOM Atos and the X-ray machine based on what we know today. This is our best estimate at this point. I added it to our proposal which is attached. Also attached is the square foot estimate for the x-ray machine. Please let me know if you need anything else.

Best, John

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Monday, February 06, 2017 11:14 AM
To: John Glidden
Cc: Wayne Sumple; Don Balducci
Subject: ITC Sustainment beyond Task 5

John,

In discussion with Carmen she indicated that she will require cost information for the sustainment activities. Even though the cost will be absorbed from existing state and federal grants as well as manufacturer subsidies, the GOM ATOS and potentially the CT X-ray scanner will divert resources from these other funded activities.

DECD will need to quantify this diversion cost.

The cost will be in terms of staff hours, dedicated square footage, maintenance, etc.

Please work with Wayne and Don to estimate the square footage requirements for the X-ray scanner installation.

Thanks,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

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STATE OF CONNECTICUT

Innovation Technology Center
(ITC)

CONNECTICUT CENTER FOR ADVANCED TECHNOLOGY, INC.

Proposal for Program Funding & Administration

February 10, 2017

Introduction and Foreword:

The Connecticut Center for Advanced Technology, Inc. (CCAT) respectfully submits this Economic Development Grant Proposal which seeks support for the continuation of the OEA RADE equipment currently in the Innovation Technology Center (ITC). For the period beginning immediately after the expiration of the OEA RADE program, CCAT proposes to use the acquired equipment as part of our mission to serve manufacturers with a special focus on Pratt & Whitney's supply chain for the F-135 engine.

About CCAT:

CCAT is a non-stock, tax-exempt corporation incorporated on May 3, 2004, and is funded under federal and state sponsored grants. CCAT's mission is to address 21st century economic challenges by creating partnerships which collaboratively provide services and resources to industry, academia, government and non-profit organizations that help them implement innovative solutions, increase efficiencies and improve workforce development. To be acknowledged by our clients as the "go to" resource for improving America's competitiveness and as the best practices partner for organizations and businesses with a technology focus. We will deliver value-added programs efficiently and effectively, with a bold entrepreneurial spirit, and attract the best and brightest people to our collaborative culture and landmark facilities.

Program Background and Summary:

The ITC was created as part of the OEA RADE contract with the federal government. Its purpose is to introduce new manufacturing technology to manufacturers with a particular focus on Pratt & Whitney's F-135 supply chain in preparation for future production. This Center is located at CCAT's Advanced Manufacturing Center and, as of the writing of this proposal, housed a GOM Atos Blue Light scanner purchased under the OEA RADE program as cost share. A second piece of equipment is contemplated (CT X-ray Scanning) but has not been fully defined yet.

CCAT proposes any equipment bought under the OEA RADE program become part of CCAT's AMC by means of a no-cost transfer. This equipment will continue to be used to demonstrate advanced technologies to manufacturers with a particular focus on the F-135 supply base for the same purpose for which it was originally intended. The equipment will become part of a pool of advance technology used by CCAT. CCAT will fund labor and maintenance expense using current and future federal, state and industry funding as applicable and will not require any new funding from the DECD.

Administrative Qualifications & Justification

CCAT has been involved with manufacturing technology since the company's inception in 2004. Our Advanced Manufacturing Center (AMC) serves as a national resource for applied manufacturing technology and boasts some of the most modern manufacturing equipment currently available in the marketplace. With the rapidly expanding interest in additive manufacturing, CCAT has also added both metal and plastic 3D printing capability to its inventory of advanced manufacturing equipment. CCAT recently installed a Hybrid DMG machine and is in the process of installing a new CNC Portal Milling Machine from Zimmermann for composites. The latest High Rate Additive Manufacturing (HRAM) equipment is expected to be installed later this year.

Through site visits, surveys, and research CCAT continually seeks to understand the needs of small and medium-sized manufacturers (SMMs). CCAT's history of conducting technology workshops, providing manufacturing training and productivity assessments to small and medium sized manufacturers makes it uniquely qualified to manage the additional equipment from the OEA RADE program. Included among our staff are degreed engineers and machinists with decades of combined manufacturing experience. Many individuals on our staff have also worked in manufacturing environments and understand the many unique challenges faced by manufacturers.

CCAT believes our AMC would be the best, most cost effective use of the OEA RADE equipment. CCAT has the right facility, staff, and programs to continue to effectively use this equipment in the manner it was intended. Our staff has been fully trained to use this equipment and has experience on projects with manufacturers using it. DECD would incur significant cost to rig out and move this equipment to any other location as well as potentially damaging it during a move.

The GOM Atos has already proven valuable to the manufacturing supply chain as we have received projects/inquirers from; EDAC, Flanagan, GKN, Hubbell, NEAP Phoenix, Satellite Tool, Alpha Q, Polamer, Pratt & Whitney (P&W) and Vivax Medical companies. We have also had interest from the Air Force Research Laboratory (AFRL) for measurement of artifacts to prove out the technology.

Program Summary & Procedures

1. **Overall Objective**

   CCAT's primary objective will be to make the OEA RADE equipment available to the manufacturing supply chain with a special emphasis on P&W's F-135 suppliers. CCAT will use funding from the various federal and state programs to fund this effort as well as appropriate cost share from manufacturers. We will follow whichever procedures are required by the funding source.

   CCAT will keep the equipment in good working order for the extent of its useful life, estimated to be approximately seven years. This equipment will become part of CCAT's fixed assets which are audited annually by an independent audit firm, a copy of which is supplied to the State of Connecticut each year.

2. **Management**

   The management of this equipment will be part of CCAT's AMC Directors' duties and responsibilities. He/she will be responsible for maintaining the equipment and for carrying out the objective of making it available to manufacturers and the F-135 supply chain.

3. **Reporting**

   At DECD's request, CCAT will provide a yearly summary of projects which used the OEA RADE equipment for the duration of its useful life. This summary would include:

   a.) Project description
   b.) Company
   c.) Funding source
   d.) Impact/outcome

4. **Scope of Services**

   Not applicable

5. **Budget Narrative**

   No further funds are requested after the completion of the OEA RADE program. Attachment #1 estimates future funding sources to sustain the equipment.

6. **Payment Schedule**

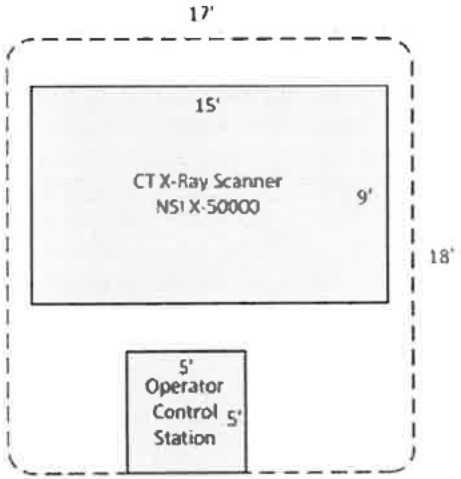
   Not applicable

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

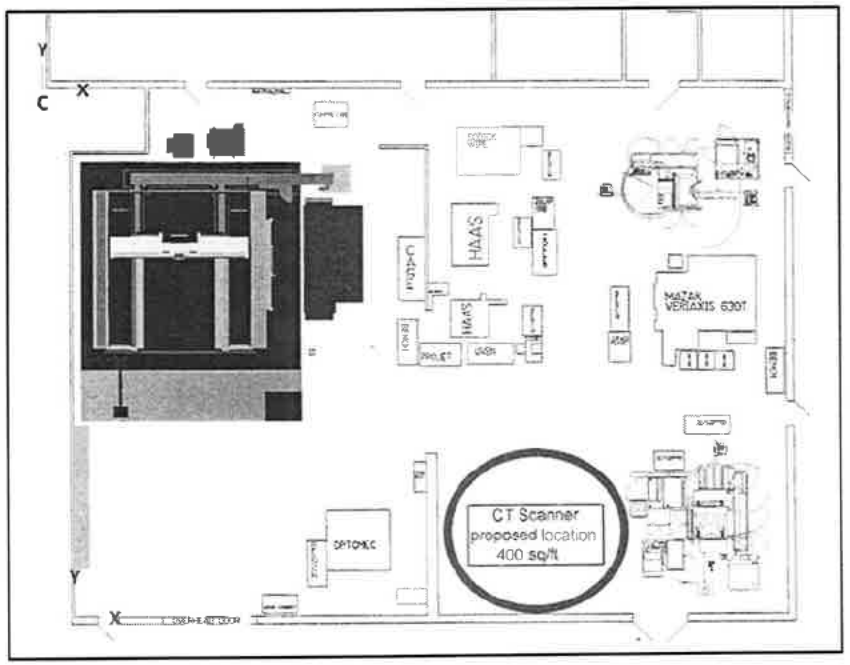
[redacted]

CT X-RAY SCANNER
NSI X5000
PLANNING DOCUMENT

- Rigging cost – assumes 15,000 pounds, delivered in crate, requiring assembly (3rd party) = $3,000
- Electrical hookup – assumes 208 voltage installed by 3rd party = $2,000
- Required Space = 306 ft2 per documents provided by NSI see sketch A below
- Available Space on AMC main floor = 400 ft2 located per sketch B below



Sketch A
Required space = 306 ft^2



Sketch B
Available space = 400 ft2

Note: Attachment withheld pursuant to CGS § 1-210(b)(1)

From: Wayne Sumple <wsumple@ccat.us>
Sent time: 03/23/2018 01:20:12 PM
To: Fernandez, Barbara; Molina-Rios, Carmen; Gutierrez, Beatriz
Cc: Don Balducci <dbalducci@ccat.us>; John Glidden <jglidden@ccat.us>; Lisa Wilson <lwilson@ccat.us>; Bruce Karasik <bkarasik@ccat.us>
Subject: ITC Update
Attachments: ITC Supplier Status CCAT 20180323wms.xlsx AMC Success Stories B.pdf

---

Barbara – the information you asked for is provided below. The attached ITC Supplier Status is my tracking mechanism. The attached AMC Success Stories is a work in progress that provides non-defense related project detail with pictures.

# of companies participated – GOM ATOS (20), NSI X5000 (8)
Types of Projects – Blue-light scanning, CT X-Ray
# of projects implemented – GOM ATOS (19), NSI X5000 (9)
Equipment Hours Used – Total 4,253 - GOM ATOS (3,030) + NSI X5000(1,223)

ITC Update through 3/16/18
Since November of 2016 when the ITC officially started and the GOM ATOS was delivered to CCAT, 4,253 hours have been spent by AMC personnel in the ITC. The first 930 were spent training on the GOM ATOS. The next 2,100 were spent demonstrating the capabilities of the GOM ATOS to CT companies. Since August of 2017 when the NSI X5000 was delivered, 300 hours have been spent on preparing, delivery and training on the CT X-Ray scanner and 923 hours demonstrating the equipment and conducting projects. Breakdown of hours provided below is an estimate mostly because informal demos aren't tracked the same way formal demos are tracked. The GOM ATOS and the NSI CT X-Ray scanner are two of the more popular technologies demonstrated at the AMC.

How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?
930 hours
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?
2100 hours
Informal demonstrations to visitors touring AMC
Formal demonstrations to 20 companies
1 Project being investigated – Precision Metal Products
0 Active projects
10 Complete projects – AFRL, Dreamspace, Flanagan, GKN, NEAP, Phoenix, Satellite Tool, UTAS, Vista, Ward Leonard
9 Not interested

How many hours have CCAT staff spent learning how to operate the NSI X5000 CT X-ray Scanner?
300 hours
Preparing space at the AMC for the ITC
Managing the delivery and installment of the NSI X5000
Formal training provided by NSI
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the NSI X5000 CT X-ray scanner to CT manufacturers?
923 hours
Informal demonstrations to visitors touring AMC
Formal demonstrations to 8 companies
1 Project being investigated - Addaero
2 Active projects – Addaero, Keith Duly
5 Completed projects – Addaero, AGC Incorporated, P&W, Prospect Machine, Results Group

Wayne M. Sumple

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Note: Withheld pursuant to CGS § 1-210(b)(1)

10 - Pages

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

#	FUNDING SOURCE	COMPANY	PROJECT TYPE	PROJECT DESCRIPTION	STATUS	LEAD	START DATE	END DATE
1	ITC	Addaero-4	scanning ct	[redacted]	investigating	Wayne	04/13/17	
2	ITC	Precision Metal Products PMP	scanning sls		investigating	Don	03/20/18	
3	ITC	Addaero-7	scanning ct		in-progress	Alex	03/01/18	
4	ITC	Duly, Keith (Cunningham Auto)	scanning ct		in-progress	Alex	02/27/18	
5	ITC	Addaero-2	scanning ct		complete	Wayne	08/28/17	09/27/17
6	ITC	AFRL-3	scanning sls		complete	Nasir	04/13/17	05/15/17
7	ITC	AGC Incorporated-2	scanning ct		complete	Wayne	01/08/18	03/01/18
8	ITC	Dreamspace	scanning sls		complete	Alex	02/15/18	02/27/18
9	ITC	Flanagan-1	scanning sls		complete	Nasir	01/01/17	02/01/17
10	ITC	GKN Newington	scanning sls		complete	Nasir	11/01/16	01/23/17
11	ITC	NEAP	scanning sls		complete	Nasir	03/01/17	04/01/17
12	ITC	P&W East Hartford-7	scanning ct		complete	Alex	02/19/18	03/12/18
13	ITC	Phoenix Manufacturing	scanning sls		complete	Don	05/01/17	06/01/17
14	ITC	Prospect Machined Parts	scanning ct		complete	Wayne	08/28/17	09/27/17
15	ITC	Results Group-1	scanning ct		complete	Alex	01/26/18	03/12/18
16	ITC	Satelite Tool	scanning sls		complete	Wayne	02/01/17	05/01/17
17	ITC	UTAS - Windsor Locks-2	scanning sls		complete	Nasir	11/21/17	1/15/2018
18	ITC	Vista Group International	scanning sls		complete	Nasir	03/15/17	06/15/17
19	ITC	Ward Leonard-2	scanning sls		complete	Don	09/25/17	10/30/17
20	ITC	Aerospace Alloys-1	scanning sls		cancelled	Wayne	04/01/17	04/13/17
21	ITC	Alpha Q	scanning sls		cancelled	Nasir	04/13/17	05/31/17
22	ITC	Barnes Aerospace	scanning sls		cancelled	Wayne	02/01/17	08/01/17
23	ITC	Colonial Spring	scanning sls		cancelled	Nasir	11/01/17	02/27/18
24	ITC	CT Tool/Whitcraft	scanning sls		cancelled	Wayne	04/13/17	07/14/17
25	ITC	EDAC/Flanagan	scanning sls		cancelled	Wayne	04/13/17	06/30/17
26	ITC	Hubbell-1	scanning sls		cancelled	Wayne	04/13/17	07/17/17
27	ITC	Polamer	scanning sls		cancelled	Nasir	04/13/17	06/01/17
28	ITC	Spartan Aerospace, LLC	scanning sls		cancelled	Wayne	07/03/17	08/01/17

From: Wayne Sumple <wsumple@ccat.us>
Sent time: 09/14/2017 10:47:23 AM
To: Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>; Fernandez, Barbara
Cc: Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>; Molina-Rios, Carmen; Don Balducci <dbalducci@ccat.us>; Gutierrez, Beatriz
Subject: ITC Update

Barbara/Ken,

Barbara – the information you asked for is presented below.

# of companies participated – GOM ATOS (15), NSI X5000 (4)
Types of Projects – Blue-light scanning, CT X-Ray
# of projects implemented – GOM ATOS (11), NSI X5000 (4)
Equipment Hours Used – Total 3035, GOM ATOS (2630) + NSI X5000(405)

Ken – the latest ITC update is provided below. Let me know if there is anything else you need.

ITC Update through 8/31/17

Since November of 2016 when the ITC officially started and the GOM ATOS was delivered to CCAT, 3035 hours have been spent by AMC personnel in the ITC. The first 930 were spent training on the GOM ATOS. The next 1700 were spent demonstrating the capabilities of the GOM ATOS to CT companies.

Since August of 2017 when the NSI X5000 was delivered 300 hours have been spent on preparing, delivery and training on the CT X-Ray scanner and 105 hours demonstrating the equipment and conducting projects.

The breakdown of hours provided below is an estimate mostly because informal demos aren't tracked the same way formal demos are tracked. Both the GOM ATOS and now the NSI CT X-Ray scanner are attracting a lot of attention to all visitors to the AMC.

How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?

930 hours
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?

1700 hours
Informal demonstrations to visitors touring AMC
Formal demonstrations to 15 companies
4 Projects being investigated
0 Active projects
7 Complete projects – Flanagan, GKN, NEAP, Phoenix, Satellite Tool, Vista
4 Not interested

How many hours have CCAT staff spent learning how to operate the NSI X5000 CT X-ray Scanner?

300 hours
Preparing space at the AMC for the ITC
Managing the delivery and installment of the NSI X5000
Formal training provided by NSI
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the NSI X5000 CT X-ray scanner to CT manufacturers?

105 hours
6 Informal demonstrations to visitors touring AMC
0 Projects being investigated
2 Active projects – Addaero, Advanced Manufacturing
2 Complete projects – Prospect Machine, UTAS

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From: Wayne Sumple <wsumple@ccat.us>
Sent time: 11/16/2016 01:29:07 PM
To: Molina-Rios, Carmen
Cc: Jean M. Forsyth (jforsyth@belcan.com) <jforsyth@belcan.com>; Don Balducci <dbalducci@ccat.us>
Subject: ITC

Hi Carmen,

GOM ATOS blue light scanner is finally up and running in the ITC. First day of training was yesterday. Thought you'd like an update. My initial observation is that the scanner is more complicated to operate than expected but has more capabilities than expected also. Our CCAT engineers are excited about the possibilities for this technology. That being said, there are a couple of outstanding issues that need to be resolved.

Now that Jean and Ken at Beltran have been assigned as Project Managers of the ITC effort I will work with them to resolve.

- Robot Controller - 3D Systems installers damaged the robot last Monday during installation. Wired incorrectly to power source. Took several days to fix.
- Side Panel - One side panel damaged by 3D Systems during installation (minor) – still needs to be repaired.
- Reference Frames – The three photogrammetry reference frames and their mounting hardware that came with the Scan Box, do not fit in the Scan Box – these will need to be replaced.
- Training – follow on training by 3D Systems still needs to be scheduled

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Manufacturing Innovation Fund Advisory Board Meeting

Department of Economic and Community Development

505 Hudson Street
Hartford, CT 06106

Thursday, February 16, 2017
9:00 a.m. - 10:30 a.m.

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Agenda

- **Welcome & Introductions**
- **Approval of January Minutes**
- **Energy on the Line (vote)**
- **Marketing Update**
- **Innovation & Technology**
  - Draper Lab's Perspective
  - MIF Updates
    - RADE 2
    - High Rate Additive
  - Composites
    - Advanced Composites
    - CT Composite Center of Excellence (vote)
- **RFI Update (Vote)**
- **Other Business**
  - Strategy Session

Innovation & Technology

Defense and Manufacturing Innovation

MIF Updates

RADE 2: Task 5

Goal: Increase CT defense supply chain companies cost competitiveness through specialized process innovations and technologies to assist in meeting market demands.

Description: Test processes, machinery and equipment for the smaller Defense Manufacturing supply chain companies with regard to product and innovation with a focus on:

- Non-contact dimensional measurements
- Non destructive inspection/product integrity.
- Surface finish optimization.

Partners: CCAT, Draper Labs, and Belcan Engineering Group

Budget:

DOD OEA	$4,494,304
State Match: MIF	450,000
DECD in-kind	66,956
CCAT in-kind	38,000

RADE 2: Task 5 Update

- Technology Coordinator is hired and engaged in program management, Belcan Engineering Group
- The ITC is established, equipped and staffed through CCAT
- The GOM ATOS machine is purchased and operational
- CCAT, Draper and Belcan contacted over **55** aerospace suppliers
- CCAT is implementing scanning technology projects
  - **14** companies engaged and participating in the program
  - **8** demonstration projects are started
- Draper is working on supplier site technology projects
  - Engaged in **14** projects across **5** suppliers
  - **2** projects completed
  - Deployment of advanced metrology equipment, cycle time reduction, process automation, measurement system analysis and statistical process control

High Rate Additive

Goal: Design and commission a high rate additive manufacturing cell to manufacture metal components that provides Connecticut's supply chain with a competitive edge in aerospace, defense, power generation, medical, and commercial sectors

Description: Additive manufacturing system capable of depositing at least 1,000 grams of metal per hour (a twenty-fold increase from state-of-the-art) on large size (~7'-8' diameter) production parts

Partners: 20 CT companies (OEMs and SMEs) interested;
Laser Technology Associates first formal partner

,

Budget: Total program budget is $3,500K. Initial $600K funded Dec. 2016.

Update:

1. System Requirements being finalized 3/31/2017;
2. Ten candidate System Integrators contacted; issued RFP to down selected candidates 6/30/2017
3. System Integrator Selected;
   MIF request for remaining $2,900K 8/31/2017
4. Equipment Operational 9/2018

Composites

Advanced Composites

Goal: to demonstrate a new approach to dynamic, adaptive, and mistake Proof machining of advanced, high value structural composites using technologies that are applicable to current and future platforms and components.

Description: this initiative will assist manufacturers increase production speed, lower costs, increase competitiveness and will provide advanced composite material manufacturing proficiency which Is needed in order for CT manufacturers to remain competitive domestically and globally.

Budget:

CCAT:	$ 100,000 (Cash)
	$ 100,000 (In-Kind)
MIF Funds:	$2,900,000
Total:	$3,000,000

MIF Advanced Composites Update

Deliverable Description	Met	Outcome	Deliverable Impact
RFP for design composite cell	Yes	RFP sent to bidders	Solicit bids
Signed agreement for composite cell	Yes	Order placed	Equipment to be delivered
Equipment on site at AMC	Yes	Equipment delivered in December 2016	Equipment on site
Composite cell certified as production ready	No	Composite Cell ready for use – anticipated June 2017	Equipment ready for first project
Undertake Company Projects	Yes	GKN F-135 Inlet Case GKN has invested $100,000 and provided staff	

Connecticut Center of Excellence for Composites Manufacturing

The Market

- Composites are important in a variety of industries: aerospace, automotive, construction, marine, defense, mass transit, sports and recreation, wind/energy.
- According to Composites World the composites market size of end products is projected to reach $90 billion by 2020.
- In the U.S, that largest opportunity is in aerospace driven by the demand for aircraft.
- Demand 2016-2035: 33,000+ aircraft

Source:
Airbus - 33,074 aircraft

Source:
Boeing - 39,620 aircraft



The Opportunity for Connecticut

CT Capabilities

- A good foundation in composites manufacturing and materials expertise.
- Academic institutions with research depth in the area: UCONN and University of Hartford
- Current investments in Joint Strike Fighter by both industry and Dept of Defense.
- MIF investments at CCAT in composites machining (Zimmermann).

Initial focus will be on the Composite Fan Blades (CFB)

- CFB is major market differentiator for future engine orders.
- Will build on current CT capabilities.
- GE suppliers currently manufacture CFBs in TX, NH, France
- Rolls-Royce introducing CFBs in facility in Cypress, California for next generation materials.
- P&W MUST develop CFBs and a supply chain with composites capabilities to remain competitive. The Pratt choices are: CT, NY, SC, France, or UK.
- Timing is critical: must start now. Takes 3+ years effort to reach full manufacturing readiness and meet market demand.

Composites Future State in CT

- Composites products are developed in a holistic and integrated system that combine: academic research, applied science and machining, manufacturing processes and design involving schools, students, OEMs, suppliers, and non profit institutions.
- A technically proficient, diverse & competitive supply chain.
- A world class trained workforce.
- Increase employment due to new capacity in the supply chain and OEMs. For each aerospace job created CT adds another 2.7 jobs:
  - Advanced Material Systems
  - New Products
  - New Manufacturing Processes

Vision/Goal

Vision

- A state-of-the-art Center of Excellence for Composites Manufacturing for industry.

Goal

- Establish in CT an industry led center to address manufacturer's technology and workforce needs.
- Integrate design and manufacturing processes that are proven and consistent.
- Manufacture composites products and parts that have predicable quality and functions.

Description

- CCAT along with industry, academia and government partners will create and operate a Center of Excellence for Composites Manufacturing in Connecticut.
- The center will use equipment and capabilities at both CCAT and Goodwin in East Hartford.

Scope

Technology

- Composite material systems
- Advanced manufacturing, process development, prototyping, automation
- Integrated product and process development
- Material characterization and modeling
- Mechanics of materials and mechanical analysis
- Metrology for composites

Workforce

- Curriculum Development
- Training
- Internships
- Degreed Programs
- Certifications

Metrics

- #'s of companies participating
- # of projects implemented
- # of students graduated in composites degree programs
- # of students certified in composites technologies
- # of engineering students engaged in company projects
- # of products and parts manufactured in CT by using the technology and processes developed at the center

Partners & Roles

State of CT MIF	Fund center equipment
CCAT	Management and operation of center. Provide technical staff for the center. Recruit companies to participate in the center Perform company project analysis and implementation
GKN	Assist in Center program design Provide Internships Supply on-going industry input
Pratt & Whitney	Assist in Center program design Provide Internships Supply on-going industry input
Goodwin College	House Composite Center-Willgoos Establish Composite Curriculum for a degreed and certificate program. Collaborate with other academic institutions on composites curriculum. Train students and other academic institutions . Facilitate industry internships.
UConn	Manufacturing Process Modeling & Adv. Simulation Institute of Materials Science Participation Train students ,facilitate industry internships. Collaborate with other academic instructions.
University of Hartford	Metrology for Composites Curriculum; Provide metrology / Non-destructive test support. Train students .Facilitate industry internships.
CSCU	Adapt Composite Curriculum Train students , facilitate internships. Collaborate with other academic institutions.
ACMT ,Hexcel Corp. Kaman Corporation, Lockheed Sikorsky	Assist in Center program design and provide on-going industry input Provide Internships Materials Suppliers/Developers; Service Providers, Product Developers, Manufacturers

MIF CCAT New Request

Of the $5 million previously authorized in statute,

- $2.9 million has been approved and paid to CCAT for the purchase of the Zimmerman machine, which will be used as part of the Center
- $2.1 million awaiting approval

CCAT Current Request:

- Approve the remaining $2.1 million to be used for equipment for the Center
- Approve an additional $4.8 million for equipment.
- Funds to be paid in the following order:
  - $2.1 once contract with CCAT is complete
  - $2.4 July 2017
  - $2.4 January 2018

BUDGET

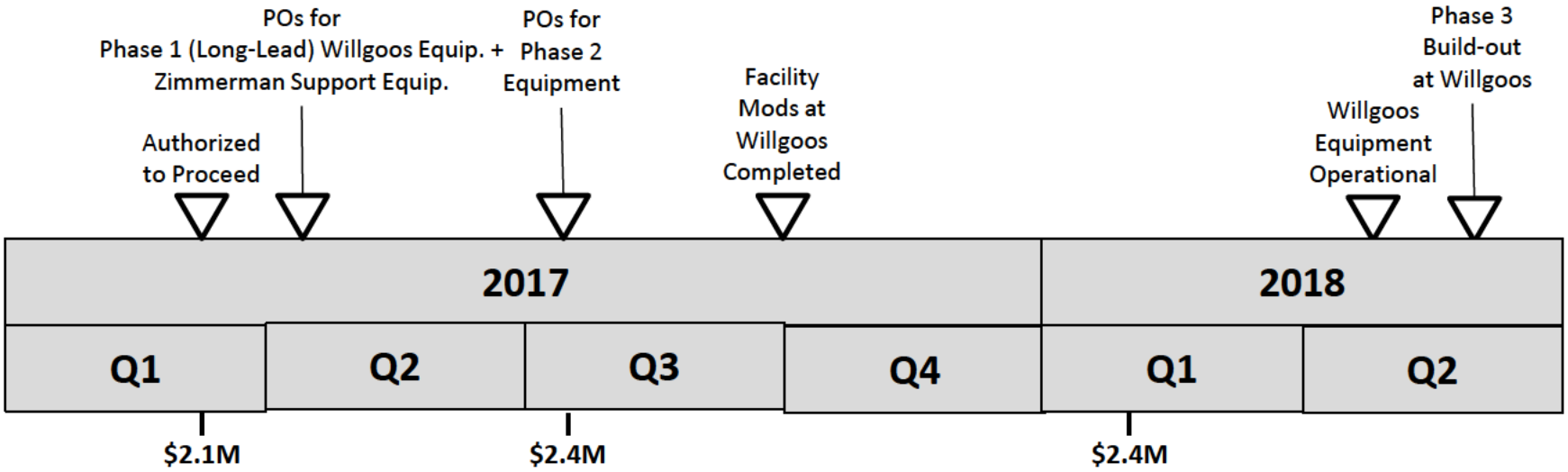
Tasks/Uses			
Tasks	**Use**	**Estimate $'s in millions**	**Source**
Improvement to existing facility - Center-Willgoos	Leasehold improvements	$0.4	Goodwin College
Equipment for Center - Willgoos and additional equipment for Center-AMC	Auto fiber placement, optical ply inspection, autoclave, production chamber, oven, cutting table, vacuum system, tooling, fixtures	$6.9	MIF
Start-up Composite Center costs (1 year period)- CCAT management of Center	Staff salaries/fringe, rent, expenses	$1.0	CCAT (Fees paid by industry)
TOTALS		$8.3	

List of Equipment Cost

Automated Fiber Placement	$ 2,500K
Optical Ply Inspection	$ 500K
Autoclave	$ 700K
Production Chamber	$ 500K
Oven	$ 200K
Cutting Table	$ 250K
Laser Alignment System	$ 300K
Material Handling	$ 500K
Robot (Pick & Place)	$ 350K
Freezer, Crane, Vacuum Pump	$ 500K
Vacuum System, Tooling, Fixturing, Mat'ls for Zimmerman	$ 600K
	$ 6,900k

Note: Equipment designed for generic composite project use

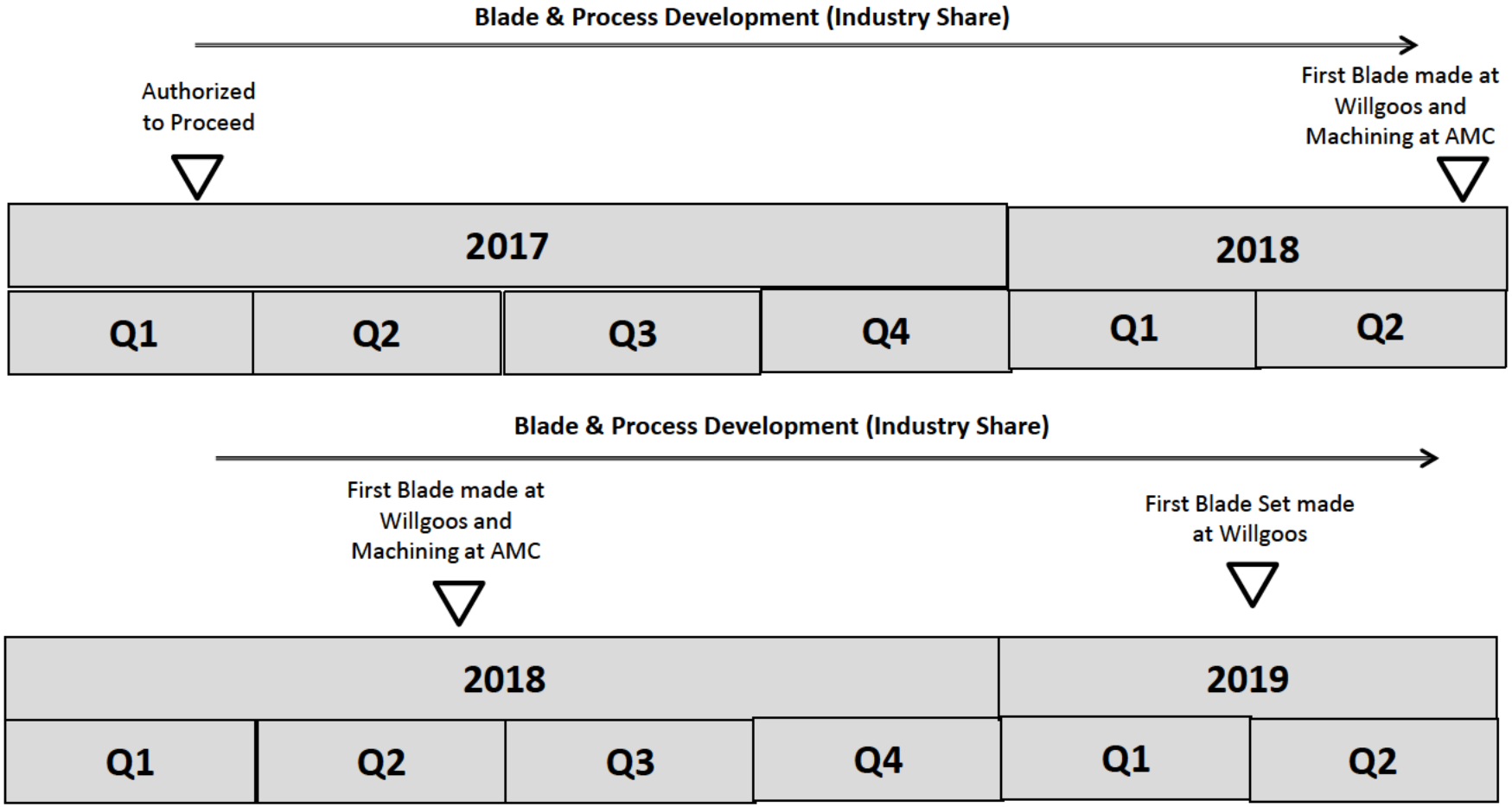
TIMELINE


Authorized to Proceed
POs for Phase 1 (Long-Lead) Willgoos Equip. + Zimmerman Support Equip.
POs for Phase 2 Equipment
Facility Mods at Willgoos Completed
Willgoos Equipment Operational
Phase 3 Build-out at Willgoos
2017
2018
Q1
Q2
Q3
Q4
Q1
Q2
$2.1M
$2.4M
$2.4M

First Project:
Composites Fan Blades (CFB)

- Industry participation: Pratt & Whitney, GKN. Pratt will invest $20 million in this project and GKN will invest $20 million.
- Academic partners: UCONN, University of Hartford, Goodwin
- Project outcome: first industry blade set production ready by Q4 2020.

Project Timeline



Connecticut
still revolutionary

Next Steps

- CCAT finalize lease with Goodwin.
- Finalize agreement with Goodwin/CSU/UCONN for composites curriculum and certificates.
- CCAT orders long lead time equipment.
- CCAT/Pratt/GKN and academic partners finalize project agreements for CFB.
- Create sustainability model for the center.

RFI

RFI Update

- Evaluation Committee reviewed 6 proposals
- None of the proposals hit the mark
- Recommendation: An RFP for the following model:
  - A customer grounded
  - Community supported and involvement, i.e. industry education and key stakeholders
  - Novel methods through experiential learning
    - Video competitions
    - Hands on opportunities at manufacturers, schools, museums, etc.
    - Robotics
  - School advocates with ownership and responsibility
  - Effective communication through social media channels
  - Leverage and collaborate with existing efforts, Dream It. Do It. and Make it Here

MIF Reports

Financial Report
As of January 31, 2017

Total Authorized Programs	Authorized	Amount Approved by Board (A)	Amount for Administration	Paid to Program Provider (B)	$ to Companies	Balance to be paid to Program Provider (A) – (B)
Advanced Composites		2,900,000	0	2,800,000	0	100,000
Apprenticeship		7,799,000	0	2,275,000	2,150,30	5,524,000
Energy on the Line		800,000	0	800,000	0	0
High Rate Additive Manufacturing Machining		600,000	410,000	600,000	0	0
Incumbent Worker Training		7,000,000	350,000	5,000,000	4,511,134	2,000,000
RADE Federal Match		450,000	0	0	0	450,000
Voucher Program		15,732,542	732,545	10,618,180	10,451,13	5,114,362
Dream It Do It/Young Manufacturers		423,000	145,944	423,000	0	0
DECD Misc.		N/A	148,548	0	0	0
Marketing		200,000	200,000	0	0	200,000
Totals	**60,000,000**	**36,171,065**	**1,987,037**	**22,516,180**	**14,962,264**	**13,388,362**

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Manufacturing Apprenticeship Program Report

as of January 31, 2017

Applications Received	**106**
Applications Approved	**77**
Pending	29
Related Instruction Provider Contracts Approved	10
New Apprenticeship Program Sponsors	26
New Registered Apprentices	**156**

Total Obligated (Not including admin $680,000):	**$2,512,803**
Related Instruction Provider Contracts :	$362,500
Manufacturing Contracts Total:	**$2,150,303**
Wage Subsidy portion contracted from Manufacturing total above:	*$1,872,303*
Credentialing portion contracted from Manufacturing total above:	*$278,000*

Applicants Per County:	**Applicants Approved**
Hartford	29
Fairfield	8
New Haven	18
Litchfield	9
Windham	4
Middlesex	6
New London	2
Tolland	1

* Reduced to $500,000 to reflect apprenticeship numbers

Energy On The Line Program

As of February 16, 2017

APPLICATIONS:

Leads	41
Received/Screened	4
Underwriting	15
Approved	0
Closed	2

GRANT DISBURSEMENTS

Average Approved:	$22,013
Average Requested:	$22,013

Applicants Per County:	Applicants Approved
Hartford	1
Fairfield	1
New Haven	0
Litchfield	0
Windham	0
Middlesex	0
New London	0
Tolland	0
Other	0

Manufacturing Incumbent Worker Training

4/15/2015-1/31/17

APPLICATIONS:

Received	229
Approved	217
Declined	1
Pending	11

Total Approved:	$4,511,134
Average Approved:	$20,788
Average Requested:	$20,788

Applicants Per County:	Applicants Approved
Hartford	58
Fairfield	49
New Haven	35
Litchfield	13
Windham	28
Middlesex	13
New London	17
Tolland	2
Other	0

Manufacturing Incumbent Worker Training

New Companies January 1st to January 31th

Company Name	Industry	Amount Requested	Amount Approved	Project Description
Allnex	325199	$17,500	$17,500	Leadership, Technical
Atlantic Steel	331221	$5,000	$5,000	Quality – ISO
Beacon Group	336412	$70,000	$70,000	Technical, Industry spec, Quality
BML Tool	333514	$15,000	$15,000	Industry Specific
C & M Corp	335929	$8,000	$8,000	leadership
CBS Mfg	336412	$5,000	$5,000	Technical, Quality , Leadership
Electric Heater Company	333318	$14,000	$14,000	Technical, Quality
Foster Corp	325991	$45,000	$45,000	Leadership, Quality, Technical
KaroTech Inc.	332439	$14,000	$40,000	Technical
Pharmco Products	325193	$11,000	$11,000	Leadership
PIC Design/Roller Bearing Company	332721	$7,000	$7,000	Quality -ISO Upgrade
Prime Resources Corp	323113	$10,000	$10,000	Quality- Lean
Waterbury Swiss	332721	$10,000	$10,000	Technical, Industry spec, Leadership
Wepco Plastics	326199	$10,000	$10,000	Technical, industry spec, Leadership
West-Conn Tool & Die Inc	333514	$50,000	$50,000	Quality, Leadership, Technical
Total		**$291,500**	**$291,500**	

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Manufacturing Voucher Program Report

as of February 16, 2017

Program Metrics:

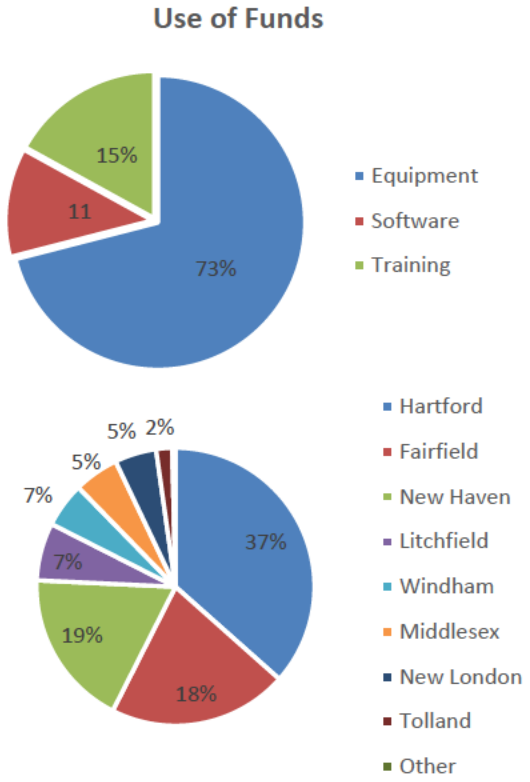
Total Approved:	$10,451,130
Average Approved	$32,660
Average Requested	$35,595

APPLICATIONS:

Received	441
Approved	321
Declined	90
Pending	30

APPLICANTS

County	Approved	Percentage
Hartford	119	37%
Fairfield	63	18%
New Haven	59	19%
Litchfield	24	7%
Windham	19	7%
Middlesex	14	5%
New London	16	5%
Tolland	7	2%
Other	0	0%



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Manufacturing Innovation Fund Advisory Board Meeting

Department of Economic and Community Development

409 Silver Lane

East Hartford, Connecticut 06118



Conference Call Number: **1.866.740.1260**

Passcode: **2912030**

Thursday, December 21, 2017

9:00 a.m. – 10:30 a.m.

Connecticut®

AGENI DRAFT

- Welcome
- Introductions
- November Minutes (Vote)
- 2018 Meeting Schedule (Vote)
- Commission on Economic Competitiveness Meeting
- Annual Report (vote)
- CCAT
  - Advanced Composites (Zimmerman)
    - Procedures & Guidelines (Vote)
  - High Rate Additive
  - CMSCI
  - Hydrogen Fuel Cell
  - Voucher, Dream It Do It, & YMA
- Executive Session
- Other Business

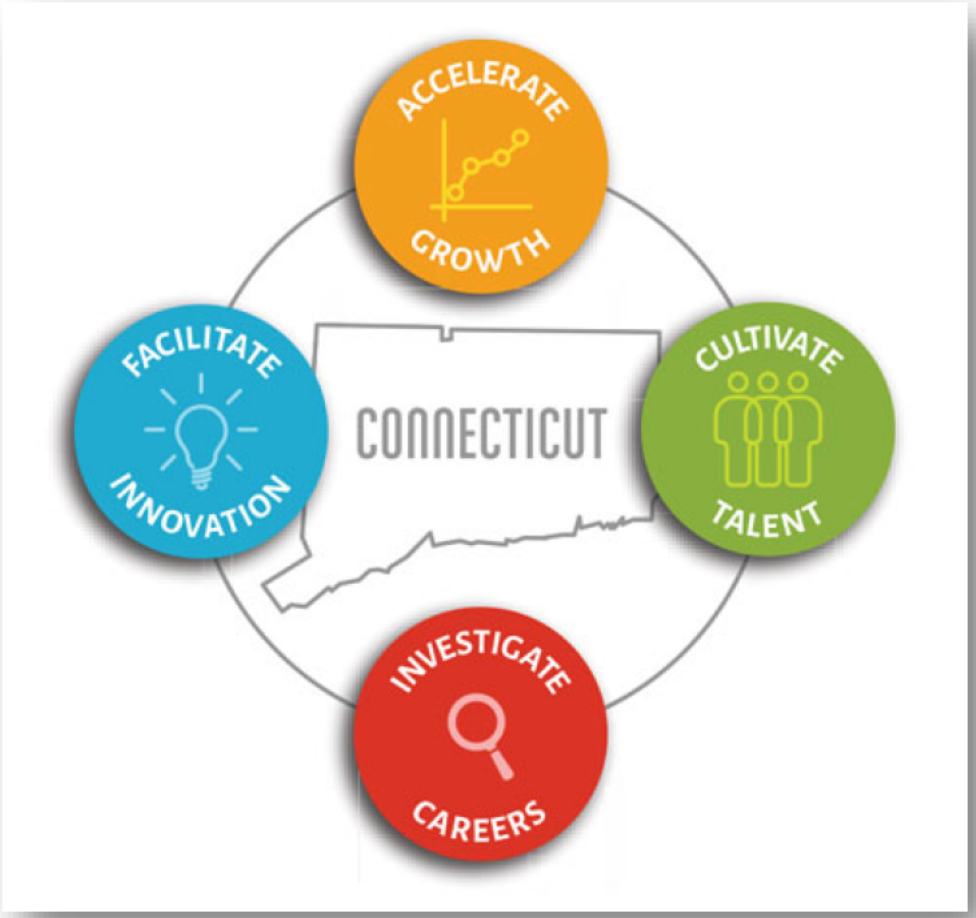
November Meeting Minutes

2018 Meeting Schedule

2018	MIF 9:00 – 10:30 1st Thursday
January	4
February	8 (2nd Thursday)
March	1
April	5
May	3
June	7
July	No meeting
August	2
September	6
October	4
November	1
December	6

Commission on Economic Competitiveness Meeting

2017 Annual Report



2017 Annual Report - Results as of June 30, 2017

- **$47,671,065** Total MIF Funding
- **$82,562,932** Leveraged Investments
- **747** Companies assisted
- **4,739** Jobs retained/created
- **~7,335** Full-time employees trained, upgraded skills and increased productivity
- **242** New Apprentices
- **10** Programs/Initiatives
- **$19,488,523 –** Workforce Development
- **$10,850,000 –** Innovation & Technology
- **$15,732,542 –** Accelerating growth in the supply chain
- **$600,000 –** Energy



CT Center for Advanced Technology (CCAT)

CCAT Organizational Overview

- **Vision:** To be a national leader and influential resource, committed to ensuring the success of the businesses and organizations we serve by achieving excellence, guiding change and sustaining growth.

- **Mission:** To create and execute bold ideas advancing applied technologies, IT strategies, energy solutions, STEM education and career development that help manufacturers, academia, government and nonprofit organizations succeed.

CCAT Organizational Overview

- Applying innovative technology in a world-class Advanced Manufacturing Center where leading-edge equipment is showcased, demonstrated and evaluated.
- Advancing context-based STEM education and promoting careers to build a future workforce.
- Enhancing performance through IT strategies that influence operational change and efficiency.
- Creating energy and power solutions that focus on sustainability, reliability, and cost-effectiveness.



CCAT Organizational Overview: Board of Directors



Richard Baxter
Chairman



John L. Choquette
Secretary



Michelle Allinson



William R. Breetz



John J. Carson



Kevin Flanagan



Paul S. Polo Sr.

Board of Directors Affiliations

- Michelle Allinson, Bolton, CT. President, Cursor, LLC
- Richard Baxter, Hamden, CT. No current affiliation - retired
- William Breetz, Hartford, CT. No current affiliation – retired.
- John Carson, West Hartford, CT. Advisor, External Relations – University of Hartford
- John Choquette, Glastonbury, CT. No current affiliation – retired.
- Kevin Flanagan, Glastonbury, CT. Chairman of Finance Committee. Senior Management, EDAC Technologies
- Paul Polo, Westbrook, CT. Officer, ACMT, Inc.
- Rodney Powell, West Hartford, CT, President, Corporate Citizenship, Eversource Energy

CCAT Report Out

FY 17-19 Programs	MIF	General Fund	MAA
CT Mfg. Supply Chain	0	397,666	
Hydrogen Fuel Cell	0	0	121,706
Supply Chain (TDB)	5,000,000	0	
Advanced Composites (Zimmerman)	2,900,000	0	
CT Center for Advanced Composites	2,100,000	0	
High Rate Additive ($2.9M TBD)	3,500,000	0	
Voucher	15,732,542	0	
Dream It Do It	516,523	0	
Young Manufacturers	673,000	0	
Sub- Totals	30,422,065	497,082	121,706
Totals	$31,040,853		

CT Manufacturing Supply Chain Initiative

- Budget: $397,666 (state portion only)
  - Staff salaries: $162,541
  - Fringe; $107,277
  - Expenses: $108,449
  - G & A: $19,399

- Description:
  - Support the Airshow
  - Manufacturing Technology Training Workshops
  - Technology assessments, assistance and referrals
  - Technology access " try before you buy"

- Metrics: for the last 20 months (FY 16-17)
  - Number of projects completed : 71
  - Number of training events completed: 23
  - Airshow Support: 2017 done/ 2018 being planned

Advance Manufacturing Center Projects FY 16-17

COMPANY	TOWN	INDUSTRY	TECHNOLOGY	LENGTH OF PROJECT (DAYS)	PROJECT USED STATE EQUIPMENT
ACETECH Plastics	East Hartford	Industial	additive - plastic		No
AdChem	Manchester	Aerospace	scanning sls		Yes
Addaero	New Britain	Industrial	machining - general		No
Addaero	New Britain	Industrial	scanning ct	30	Yes
Addearo	New Britain	Medical	machining - general		No
Advanced Manufacturing LLC	East Hartford	Industrial	scanning ct	90	Yes
Aerospace Alloys	Bloomfield	Aerospace	additive - metal		No
AGC Incorporated	Meriden	Aerospace	additive - plastic	38	No
ATI Ladish	Waterbury	Industrial	optimization		No
Atlas Stamping	Newington	Industrial	additive - metal		Yes
BML Tool	Monroe	Industrial	optimization		No
Certa Scan	Fairfield	Medical	additive - plastic		No
Certa Scan	Fairfield	Medical	additive - plastic		No
Circa Logic Oscilloscape	East Hartford	Industrial	additive - plastic	88	No
CT Childrens Medical Center (CCMC)	Farmington	Medical	tbd		No
CTC	East Hartford	Industrial	machining - general		No
DocJava	Milford	Music	scanning sls		Yes
DRT Power	Winsted	Energy	scanning sls		Yes
Electro Methods	Windsor	Electronic	optimization		No
Elidah	Monroe	Medical	machining - general		No
Ensign Bickford A&D	Simsbury	Industrial	additive - plastic		No
Ensign Bickford A&D	Simsbury	Industrial	scanning sls		Yes

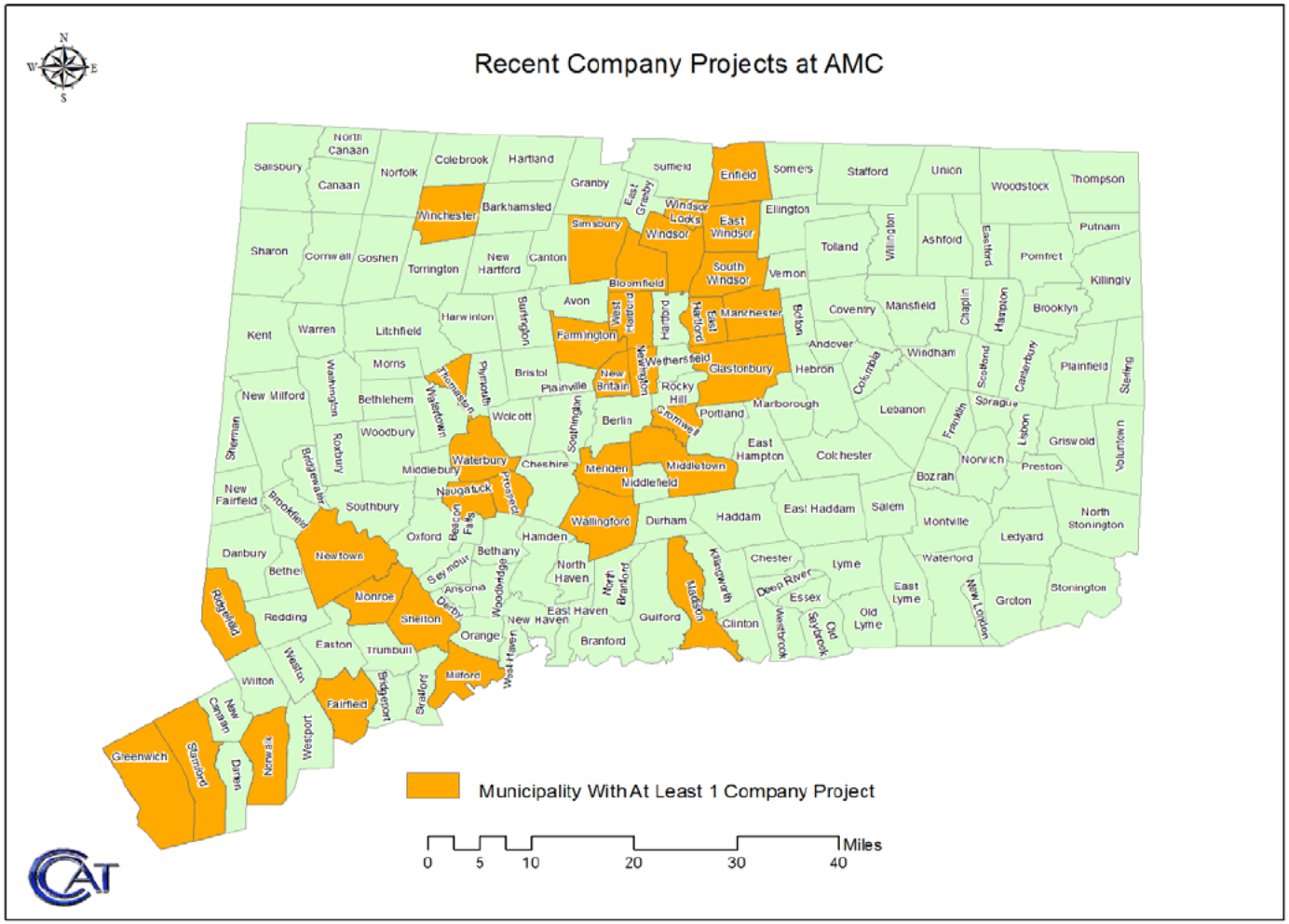
Advance Manufacturing Center Projects FY 16-17

COMPANY	TOWN	INDUSTRY	TECHNOLOGY	LENGTH OF PROJECT (DAYS)	PROJECT USED STATE EQUIPMENT
Flanagan	Glastonbury	Aerospace	optimization		No
Flanagan	Glastonbury	Aerospace	optimization		No
Flanagan	Glastonbury	Aerospace	optimization		No
Flanagan	Glastonbury	Aerospace	scanning sls		Yes
GKN Newington	Newington	Aerospace	scanning sls	83	Yes
Guardbot	Stamford	Industrial	additive - plastic	12	No
Hobson Motzer	Wallingford	Medical	optimization		No
H&T Battery Components	Waterbury	Industrial	additive - metal		No
H&T Battery Components	Waterbury	Industrial	scanning sls		Yes
Innovoducts	Farmington	Industrial	additive - plastic		No
Jonal Labs	Meriden	Industrial	additive - metal		No
Ken Kuo	Greenwich	Music	additive - plastic		No
MTU Aero Engines North America	Newington	Aerospace	additive - plastic		No
NEAP	Farmington	Aerospace	scanning sls		Yes
Olie Robotics	Manchester	Robotics	machining - general	27	No
Oxford Performance Materials	South Windsor	Industrial	machining - general		No
Peter Paul	New Britain	Industrial	optimization		No
Phoenix Manufacturing	Enfield	Aerospace	scanning sls		Yes
Prospect Machined Parts	Prospect	Industrial	scanning ct	30	Yes
Resource Matrix	Newtown	Industrial	scanning sls		Yes
RSL Fiber Systems	East Hartford	Electronic	additive - plastic		No
RSL Fiber Systems	East Hartford	Electronic	additive - plastic		No
Rx Analytic	Ridgefield	Medical	machining - general		No

Advance Manufacturing Center Projects FY 16-17

COMPANY	TOWN	INDUSTRY	TECHNOLOGY	LENGTH OF PROJECT (DAYS)	PROJECT USED STATE EQUIPMENT
Satelite Tool	East Windsor	Aerospace	scanning sls		Yes
Siemons	Cromwell	Industrial	additive - plastic		No
Slater Skins Racing	Shelton	Recreational	scanning sls		Yes
Soluthin	Madison	Industrial	additive - plastic		No
Test Logic	Middletown	Industrial	scanning sls		Yes
Test Logic	Middletown	Industrial	scanning sls	4	Yes
Triatic	West Hartford	Industrial	additive - plastic		No
University of Hartford	West Hartford	Educational	additive - plastic	76	No
UTAS	South Windsor	Aerospace	scanning ct	12	Yes
UTAS	South Windsor	Aerospace	scanning ct	30	Yes
UTAS - Windsor Locks	Windsor Locks	Aerospace	machining - hybrid	182	Yes
UTRC	East Hartford	Aerospace	additive - metal		No
UTRC	East Hartford	Aerospace	machining - general		No
UTRC	East Hartford	Aerospace	machining-ultrasonic	137	No
UTRC	East Hartford	Aerospace	additive - metal	19	No
UTRC	East Hartford	Aerospace	additive - metal	32	No
UTRC	East Hartford	Aerospace	additive - metal	32	No
UTRC	East Hartford	Aerospace	additive - metal	32	No
UTRC	East Hartford	Aerospace	additive - metal		No
Vista International Soundstik	Norwalk	Industrial	additive - plastic	137	No
Vista International Soundstik	Norwalk	Industrial	scanning sls		Yes
Vivax	Naugatuck	Medical	scanning sls	88	Yes
Vivax	Naugatuck	Medical	scanning sls		Yes
Vivax	Naugatuck	Medical	scanning sls	137	Yes
Ward Leonard	Thomaston	Industrial	scanning sls		Yes
Ward Leonard	Thomaston	Industrial	scanning sls	35	Yes

Project Distribution by Town FY 16-17



State Owned Equipment at the Advanced Manufacturing Center

Program Name	CT Investment in Project	Source of Funds	CCAT Funding Match	Technology/ Use
Composite Machining Cell program	$2,900,000	MIF	$200,000	Zimmerman 5-axis composite Machining Center
Innovation in Hybrid Manufacturing Systems in CT	$2,000,000	DECD Bond Funds	$200,000	DMG Lasertec 3D Hybrid (additive/subtractive) machining center
RADE ITC Equipment: GOM ATOS	$500,000	OEA/Fed		Structured blue light scanner
RADE ITC Equipment: CT Scan NSI X5000	$450,000	MIF		Computed topography (CT) x-ray scanner
Notes: Other assets located at the AMC include equipment funded by federal or consigned sources valued at more than $8.0M.				

Hydrogen Fuel Cell

- Budget: $121, 706 (state portion only)

- Description: Implement the Hydrogen Fuel Cell Economy Program in the state
  - Identification and expansion of markets for product sales through marketing and public relations
  - Technical / economic assessments
  - Regional coordination
  - Development of a transportation infrastructure initiative
  - Financial counseling; and business services.

- Metrics
  - Conferences state and regional: 6
  - Financial Counselling for companies: 12
  - Hannover Messe participation: 2017 completed

Advanced Composites (Zimmerman)

- Budget: $2,900,000 for equipment/ operations TBD

- Description: Demonstrate a new approach to dynamic, adaptive, and mistake-proof machining of advanced, high value structural composites using technologies that are applicable to current and future platforms and components.

- Metrics- currently only one project in process (GKN), when that project is complete metrics will be reported.
  - Production speed
  - Cost
  - Competiveness
  - Revenues/sales
  - Jobs retained/added
  - Employee skills

High Rate Additive Manufacturing

- Budget: $600,000
- Description:
  - Design and commission a high rate additive manufacturing cell to manufacture metal components that provides Connecticut's supply chain with a competitive edge in aerospace, defense, power generation, medical, and commercial sectors.
- Metrics: TBD
- Leverage: CT currently has an Additive Manufacturing Center at UCONN Tech Park and a planned Center of Excellence for Additive Manufacturing in Hartford (funded by Stanley Black and Decker)

Executive Session

Other Business

- CCAT AMC Tour
- Next Meeting: January 2018

Financial Portfol *as of November 30, 2017*

Total MIF Board Approved Programs	Total Statutory Authorization	Amount Approved by Board (A)	Paid to Program Provider (B)	Balance to be paid to Program Provider (A) – (B)	Statutory Authorized Balance
Advanced Composites		$5,000,000.00	$2,900,000.00	$2,100,000.00	
Apprenticeship		$7,799,000.00	$5,275,000.00	$2,524,000.00	
CT Center for Excellence for Composites Manufacturing		$4,800,000.00	$0.00	$4,800,000.00	
CSCU		$600,000.00	$0.00	$600,000.00	
Dream It Do It		$516,523.00	$516,523.00	$0.00	
Energy on the Line		$800,000.00	$800,000.00	$0.00	
High Rate Additive Manufacturing Machining		$600,000.00	$600,000.00	$0.00	
Incumbent Worker Training		$10,500,000.00	$7,757,320.00	$2,742,680.00	
RADE Federal Match		$450,000.00	$450,000.00	$0.00	
Voucher Program		$15,732,542.00	$15,732,542.00	$0.00	
Young Manufacturers		$673,000.00	$673,000.00	$0.00	
Marketing		$200,000.00	$120,400.00	$79,600.00	
DECD Administrative Funds		N/A	$299,608.00	$0.00	
Totals	**$75,000,000.00**	**$47,671,065.00**	**$35,124,393.00**	**$12,846,280.00**	**$27,328,935.00**

*$5M (FY18 $3.5M, FY19 $1 5M) Shall be used as a grant-in-aid to the CCAT for research/development to assist the CT Mfg. supply chain

**Of the $27.3M, $2.9M of previous appropriations needs to be approved for CCAT for the research/development of the machining of high rate laser-engineered additive mfg.

Program Reports

Apprenticeship Program Report – *as of November 30, 2017*

Applications Received	**170**
Applications Approved	**142**
Pending	28
Related Instruction Provider Contracts Approved	9
New Apprenticeship Program Sponsors	51
New Registered Apprentices	**342**
New Registered Pre-Apprentices	**36**

Total Obligated (Not including admin $680,000) :	**$4,097,329.00**
Related Instruction Provider Contracts :	$140,650.00
Manufacturing Contracts Total:	**$3,956,679.00**
Wage Subsidy portion contracted from Manufacturing total above:	*$3,512,433.00*
Credentialing portion contracted from Manufacturing total above:	*$444,246.00*

Applicants Per County:	**Applicants Approved**
Hartford	47
Fairfield	13
New Haven	41
Litchfield	21
Windham	6
Middlesex	9
New London	3
Tolland	2

Energy on the Line – *as of October 30, 2017*

APPLICATIONS*	
Leads	**33**
Received/Screened	**3**
Underwriting	**10**
Approved for financing	**0**
Closed	**11**

GRANT DISBURSEMENTS	
Total grant money granted to applicants	$248,530
Total project cost	$4,086,953

* Note: This represents the status of EOTL pipeline as projects move through C-PACE process

Applicants Per County:	Approved Projects
Hartford	5
Fairfield	2
New Haven	0
Litchfield	2
Windham	0
Middlesex	2
New London	0
Tolland	0

Incumbent Worker Training – *as of November 30, 2017*

APPLICATIONS:

Received	356
Approved	349
Declined	1
Pending	6

Total Approved:	$8,344,089
Average Approved:	$23,908
Average Requested:	$23,908

Applicants Per County:	Applicants Approved
Hartford	98
Fairfield	80
New Haven	57
Litchfield	23
Windham	40
Middlesex	20
New London	30
Tolland	5
Other	0

Manufacturing Incumbent Worker Training New Companies November 1st to November 30th

Company Name	Industry	Amount Requested	Amount Approved	Project Description
Acme Wire	332618	$10,000	$10,000	Quality – ISO, Technical
Di-EL Tool & Mfg	336370	$5,415	$5,415	Quality – AS9100
Hartford Technologies	332991	$6,000	$6,000	Technical/ Industry specific
ITBD –CCSU (Multiple Employer)	XXXXXX	$100,000	$100,000	Technical, Leadership & Quality : Six Sigma, ISO, ISO Internal Auditor
Laticrete International	325520	$15,000	$15,000	Quality ISO 9001
Northeast Laser	332812	$12,500	$12,500	Leadership (adding a new shift)
Peening Technologies/Hydro Honing	332811	$22,500	$22,500	Technical, Leadership, Communications
Plymouth Spring	332613	$30,000	$30,000	Quality – ISO Upgrade, Technical
Woodstock Line	314994	$12,500	$12,500	Industry Specific, technical
Total		**$213,915**	**$213,915**	

Manufacturing Voucher Program Rep –
as of November 30, 2017

APPLICATIONS:	
Received	580
Approved	445
Declined	119
Pending	16

Total Approved:	$14,735,181
Average Approved:	$36,191
Average Requested:	$33,338

Applicants Per County:	Applicants Approved
Hartford	154
Fairfield	83
New Haven	93
Litchfield	27
Windham	28
Middlesex	14
New London	27
Tolland	13
Other	0

From: Wayne Sumple <wsumple@ccat.us>
Sent time: 03/13/2018 12:26:39 PM
To: Gutierrez, Beatriz
Subject: NSI CT scanner

Beatriz – when will I know for sure what happens to the NSI X-ray machine and GOM ATOS Blue-light scanner after ITC money goes away?

I'm spending money to keep them running so I can continue with projects for CT companies. Projects with CT SME's - Addaero, Dreamspace, Clayton Off-Road, AGC Acquisitions, Keith Duly International and Results Group, along with larger CT manufacturers - UTAS, UTRC and P&W have used all the memory that came with the machines. I bought external hard drives ($1000) and 500GB ($3000) of additional space with our Secure Document Control System, Trubiquity to handle all the work. And I've got more projects in the planning stage. So, before I spend more money to fix the problem, and there are several good solutions, I need to know whether the equipment is going to be with CCAT or not. Can you provide any direction?

Wayne M. Sumple
Associate Director, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

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From:	Molina-Rios, Carmen
Sent time:	07/29/2016 01:18:43 PM
To:	Kennedy, David R CIV OEA (US) <david.r.kennedy.civ@mail.mil>
Cc:	Fernandez, Barbara
Subject:	OEA Interim Report
Attachments:	OEA Phase II Interim Report 63016 cmr.doc RADE 2 OEA Interim Report Projected Quarterly 063016.xls RADE 2 OEA Interim Report Project Expenses 063016.xls

HI David,

Please note, that I submitted our 06/30/16 Interim report via EADS and again had issues within the budget/project expenses so I attached documents with the required information but not sure it was accurate. For your reference, attached are the right documents that should have been attached and budget project expense information.

On another note, can you please let me know if you have all the pertinent information for the amendment request?

I appreciate all your help.

Carmen

State of Connecticut
Department of Economic & Community Development
OEA Interim Performance Report

OEA Grant ID: HQ00051410049
Reporting Cycle: 04/01/2016 – 06/30/2016
Reporting Period: 6
Submitted by: CT Department of Economic & Community Development (DECD)
Activity: During this reporting period of the grant per the submitted project timeline, progress and activities toward task deliverables are highlighted below.

Activities/Progress:	**Task 1: Economic Modeling Platform** **1.1 Deploy Phase II platform to RADE stakeholders** • The Phase II platform with updated data and enhanced visualizations has been previewed by all New England state stakeholders **1.2 Refresh DoD contract data for the four original states, including additional industry surveys** • Completed **1.3 Add new contract data for New Hampshire and Vermont, including redesign/computing of region-specific models, GIS implementation, and testing "usefulness" to the New England region** • New contract data for New Hampshire and Vermont added • Redesign/computing of region-specific models and GIS implementation completed • Continuing to test "usefulness" to the New England region during one-on-one demonstrations, presentations and informal discussions **1.4 Add enhanced visualization features and reporting features** • New England aggregate modeling visualization completed • Supply Chain map geographic visualization completed • Supply Chain map contract information display feature completed • Expanded contractor/contract data feature completed • New reporting functionality development in progress **1.5 Develop/launch Strategic Plan/Sustainability Plan for platform deployment** • Initial outline(s) for Strategic Plan completed; final plan will contain deployment and sustainability recommendations for EMP
Activities/Progress:	**Task 2: Workforce Development** **2.1 Collect best practice models from partner states to include as a cluster resource through the Commons** • In the process of evaluating state and regional workforce development tools for inclusion on the Commons in an informational format or as a link to be maintained by partner state **2.2 Provide further enhancements to the automated Job Match process** • Finalizing work with CCAT IT for automated job match process • Completing work on application for mapping manufacturers to CT public transportation as an enhancement to the Job Match tool, to assist employers with workforce challenges by linking otherwise untapped talent to their company **2.3 Recruit and manage company participation in the workforce planning pilot program** • Re-planned due to delay in staffing and completion of tool

	2.4 Contract with a third party provider to assist companies in the application of the strategic workforce planning too • Now a consultant (under contract) task; dependent on prior task
Progress/Activities:	**Task 3: RADE Cluster** **3.1 Establish a RADE Leadership Team** • Completed: the RADE team is comprised of a representative from each New England states' OEA grant holder **3.2 Develop a RADE Cluster framework** • Review of all New England state OEA projects (summaries attached) completed • Currently analyzing how each state's deliverables will contribute to developing the cluster initiative **3.3 Communicate the strategic framework for the cluster and its "usefulness" (value proposition) to the New England region** • Completed first round of one-on-one meetings with key stakeholders from all states which included collecting responses to a set of broad survey questions (regional defense sector "needs analysis") • In the process of analyzing and documenting perceived value proposition via stakeholder responses in order to inform this deliverable **3.4 Work with key state liaisons to bring all defense sectors together** • Met with DECD office representatives in New Hampshire, Vermont and Maine around the identification of defense-related sectors • Attended the *2016 Annual Maine Manufacturing Summit* focused on energy and workforce development, providing an opportunity to explore businesses involved in and out of the defense sector • Met with Molly Magee, President of *SENEDIA,* on RI defense industry; continuing discussions to identify specific industry sectors • Attended the *2016 RI Manufacturing Annual Meeting* • Attended the *NH Aerospace & Defense Conference* **3.5 Design and execute stakeholder presentations on the functionality of the economic modeling platform and update on the RADE initiative in partnership with the New England Council** • Completed a draft stakeholder presentation using a CT based OEM that can be used as a template for discussions on the functionality of the RADE Economic Modeling Platform • Met with Joseph Donovan Co-Chair, *Defense Working Group, New England Council*; continuing discussions to identify specific industry sectors from Council viewpoint

Progress/Activities:	**Task 4: Virtual Industry Commons** **4.1 Develop deployment strategy to introduce the Commons to the RADE community** • Discussions in progress with marketing consultant and state partners on deployment strategies **4.2 Full deployment** • Re-planned due to rescheduling of RADE Summit; on target as per revised timeline **4.3 Provide Commons support and enhancements** • In progress: re-planned due to rescheduling of RADE Summit; on target as per revised timeline • Continue to provide hosting and management of Commons • Member dashboard development in progress • B2B functionality in progress • Continue to solicit feedback from stakeholders on value-added features and functionality via state visits/interviews • Continued to pursue online defense news opportunities • Conducted conference calls with daily defense newsfeed providers re: subscription opportunities.
Progress/Activities:	**Task 5: Manufacturing Innovation** **5.1 Hire Technical Coordinator** • Belcan Engineering Group LLC. Waiver for Competitive Solicitation from Office of Policy Management approved DECD to enter into a Personal Services Agreement • Scopes of Services, deliverables, milestones and timeline have been approved. • DECD is in contract phase with Belcan. **5.2 Acquire and/or lease machinery/equipment** • Draper provided a revised evaluation/recommendation on Capture 3D equipment. • Provided follow up on equipment specifications recommended by Draper, P&W, DECD • CCAT provided feedback to DECD on equipment selection, size of cabinet/model/cube selection • Worked with Capture 3D on equipment requirements • Contacted Walther Trowel to review equipment and technical specifications based on media, material and time • Draper and CONNSTEP began initial partner on projects. **5.3 Installation of machinery and equipment** (To be finalized) • Reviewed technical specifications and equipment requirements for the GOM ATOS to develop test plan • Developed test plan for parts to be measured utilizing the GOM ATOS • Made necessary layout changes to accommodate new equipment recommendation **5.4 Perform Outreach to supply chain** • Consolidated DECD survey results provided to CCAT to prepare for “customer” follow up when equipment is installed • CCAT Developed matrix for test plan based on size of components from DECD survey

	• Draper contacted and followed up with 22 suppliers to gain insight on their interest to engage in a project. • Draper emailed second group of suppliers to see if there was any interest in learning more about the program. • Initial company visits were made by Draper to provide support on projects related to the F-135 program. • Letters of intent and Non-disclosure agreements were entered into by Draper and two companies. **5.5 Identify training needs** • To be identified **5.6 Deliver Training** • If/when appropriate **5.7 Process Improvement project implementation** • To be completed **5.8 Analyze/report on manufacturing innovation processes and technologies** • Review of Draper results from metrology study
Progress/Activities	**Task 6: Outreach** **6.1 Establish a defense cluster ad hoc conference planning committee** • Completed as per SOW **6.2 Create timeline and action plan for a regional conference** • Completed as per SOW **6.3 Plan and execute RADE Summit & Exposition (Spring 2016)** • Rescheduled for Fall 2016 **6.4 Develop and implement a strategic regional RADE awareness campaign** • Re-planned as per the rescheduled conference • **Additional note on Outreach activities:** CCAT presented RADE project at the Association of Defense Communities 2016 Summit in Washington DC for the "Building New Capacities for Defense Contractors" panel
Process/Activities:	**Task 7: Project Evaluation** **7.1 Develop RFP and hire third party evaluator** • Scope of services was created; • Waiver from Competitive Bid was approved by the Office of Policy & Management to engage the Center for Regional Economic Competitiveness (CREC) • Contracted drafted with scope of services, deliverables, timeline, and milestones. **7.2 Develop project logic model and evaluation plan** To be completed **7.3 Meet with program partners and stakeholders** To be completed **7.4 Review progress toward stated goals on a quarterly basis and report on a yearly basis** To be completed

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

PROJECT EXPENSES

Report Period: 04/01/16-07/01/16

Category	Approved Federal	Approved Non-federal	Spent Federal	Spent Non-Federal	Cumulative Federal	Cumulative Non-Federal
Personnel (salary)	164024	[redacted]	0	[redacted]	51,628.11	[redacted]
Fringe Benefits	114834		0		33,867.01	
Travel	3898		582.7		1,338.28	
Equipment	500000		0		0.00	
Supplies	0		0		0.00	
Contractural	3711548		563,912.81		617,826.00	
Construction	0		0		0.00	
Other	0		0		0.00	
Total Direct Charges	4494304		564495.51		704,659.40	

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Report Period: 04/01/16-07/01/16

Projected Quarterly Expenditures

Category	Approved Federal	Approved Non-federal	Actual Federal	Actual Non-Federal	**Next Quarter Projected - Federal**	**Next Quarter Projected - Non Federal**
Personnel (salary)	164024	[redacted]	0	[redacted]	**0**	[redacted]
Fringe Benefits	114834		0		**0**	
Travel	3898		582.7		**0**	
Equipment	500000		0		**450,000**	
Supplies	0		0		**0**	
Contractural	3711548		563,912.81		**310,000**	
Construction	0		0		**0**	
Other	0		0		**0**	
Total Direct Charges	4494304		564495.51		**760000**	

Note: Attachment withheld pursuant to CGS § 1-210(b)(1)

From: Susan Palisano <spalisano@ccat.us>
Sent time: 05/03/2017 03:39:46 PM
To: Molina-Rios, Carmen
Subject: OEA Phase II Interim Report 3.31.2017_CCAT final
Attachments: OEA Phase II Interim Report 3.31.2017_CCAT final.doc

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Note: Attachment withheld pursuant to CGS § 1-210(b)(1)

From: Susan Palisano <spalisano@ccat.us>
Sent time: 07/19/2016 12:54:33 PM
To: Molina-Rios, Carmen
Subject: OEA Phase II Interim Report 6.30.2016_final
Attachments: OEA Phase II Interim Report 6.30.2016_final.doc

Carmen – attached is CCAT's final OEA interim report for the quarter ending 30 June. Please let me know if you have any questions.

Thanks,
-Sue

Susan H. Palisano
Director of Education & Workforce Development
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street, East Hartford CT 06108
860-282-4224
www.ccat.us
www.ctdidi.com

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Note: Attachment withheld pursuant to CGS § 1-210(b)(1)

From: Susan Palisano <spalisano@ccat.us>
Sent time: 11/28/2016 01:00:29 PM
To: Molina-Rios, Carmen
Subject: OEA Phase II Interim Report 9.30.2016
Attachments: OEA Phase II Interim Report 9.30.2016.doc

Attached is the CCAT component of the quarterly report.

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From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	12/15/2016 12:08:53 PM
To:	Molina-Rios, Carmen
Cc:	Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	Progress Report - Rade 2 Task 5 (Weeks ending 11/20 and 11/27/16)
Attachments:	Attachment 1 DECD Belcan Servicesl 112116a.pptx Attachment 2 Procedures-Guidelines ITC F.docx Attachment 3 Supplier Survey Summary Results.xlsx

Carmen,

After the Purchase Order was signed work began on 11/14 with review of the Purchase Order, Statement of Work and Personal Services Agreement to clearly define the roles and responsibilities of the various team members (See attachment 1). For further clarification, the Belcan Team, including Jean Forsyth and Jennifer Vesce met with CCAT and Draper representatives for introductions and to establish next steps to proceed.

Travelled to CCAT to tour the facility and view the GOM ATOS Structured Light Scanner (SLS) installation. Wayne Sumple provided the tour and brought me up to date on the suppliers that had been surveyed back in January by Dan Lessard. I worked with Wayne to update the supplier list.

Directed by DECD to work with Tom Maloney of CCAT to investigate the potential installation of an x-ray scanner in the ITC to complement and expand the current SLS capability. Discussions on this topic are ongoing.

Concurrently Belcan and CCAT developed a Procedures and Guidelines document (See attachment 2). This document defines the process for interaction between DECD, Belcan, CCAT and suppliers, including the steps required for a supplier to submit a task and a marketing letter introducing the ITC to perspective suppliers.

The baseline Supplier Survey results are provided in Attachment 3 for reference. Work is process to update this list with more recent supplier activity provided by Draper and CCAT.

Regards,
Ken

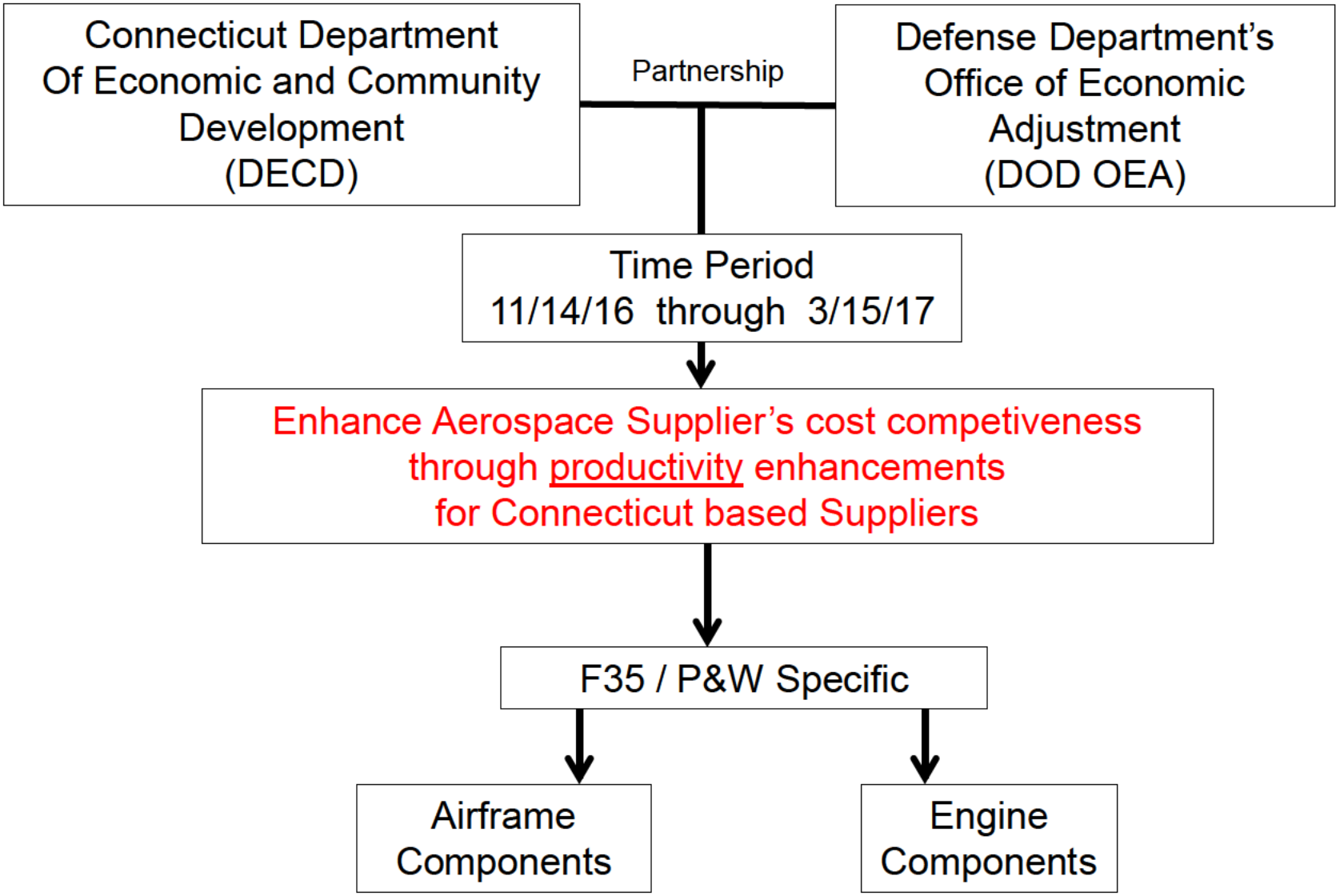
Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

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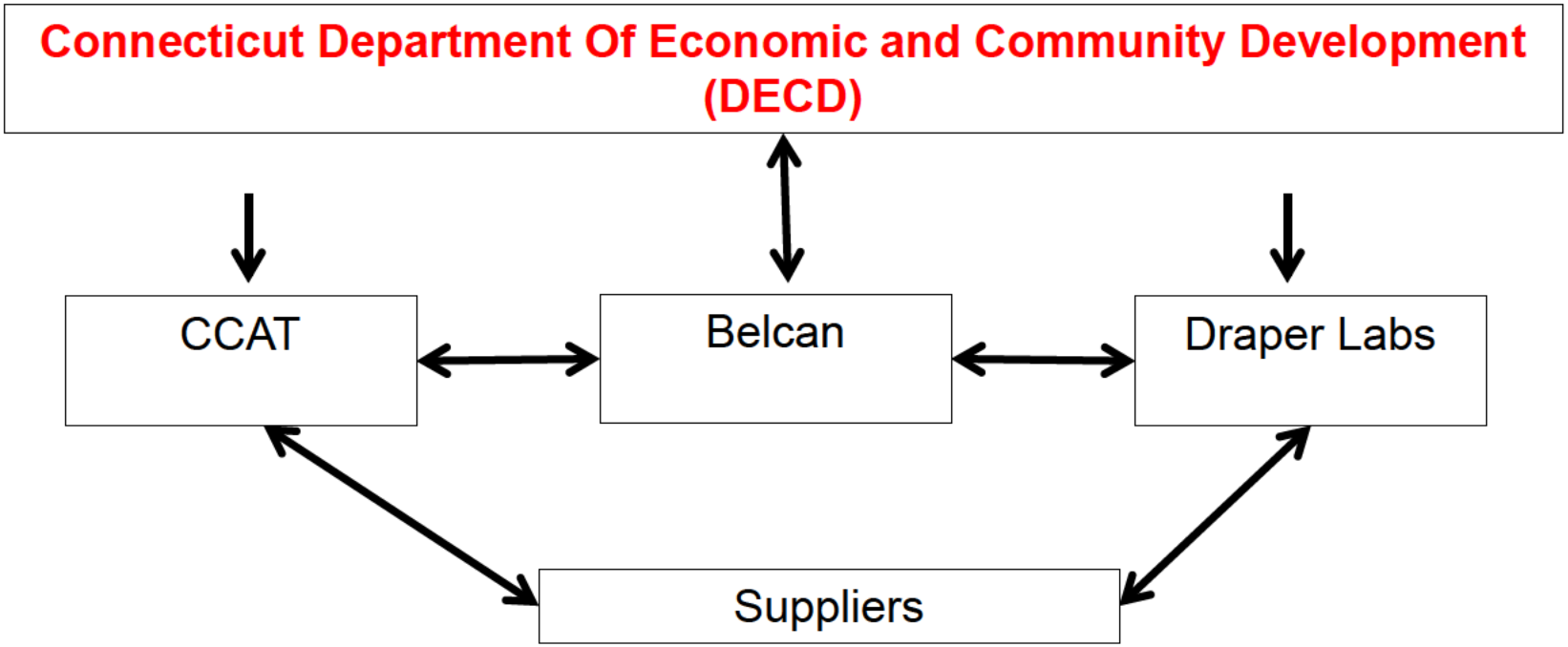
Belcan Services for DECD Activity

11/18/16

Desired outcome of this DECD Activity



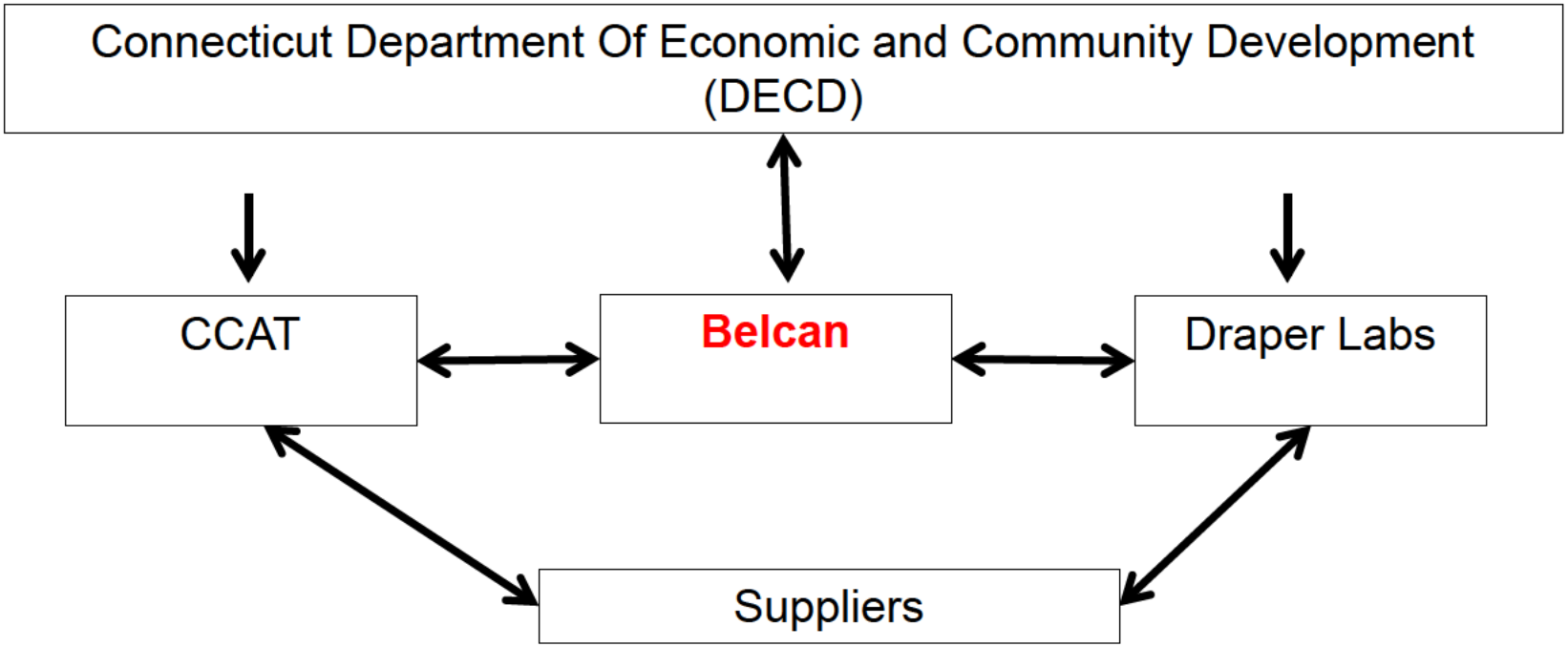
Information Flow



DECD Roles & Responsibilities:

1) Establish Belcan, CCAT & Draper contract requirements
2) Assist Belcan CCAT & Draper guidelines and protocols for supplier interface
3) Oversee Belcan, CCAT & Draper activities
4) Make existing data & material available to assist Belcan in performance of responsibilities

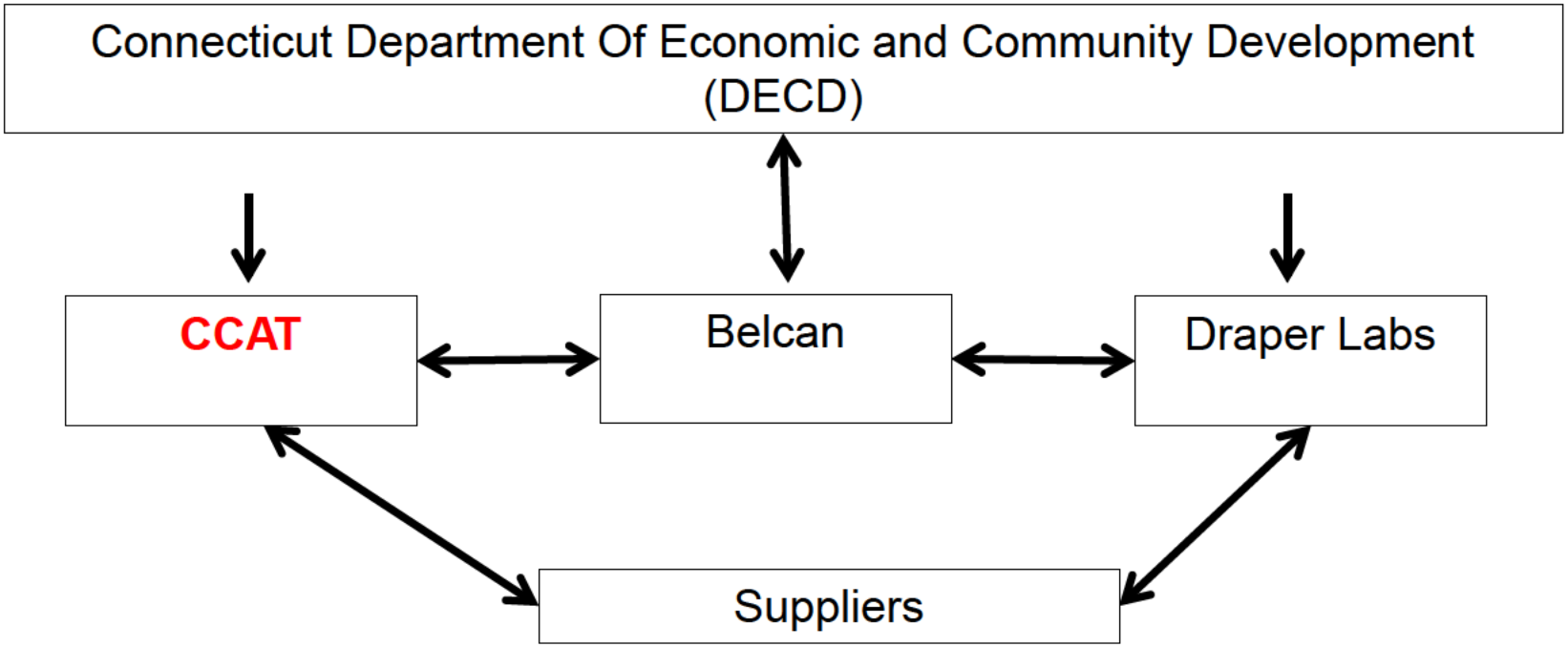
Information Flow



Belcan Roles & Responsibilities:

1) Belcan acts as Program Manager for DECD
2) With DECD, CCAT & Draper develop & implement a detailed project plan with milestones, resources, budget & equipment
3) Work with Technology Advisor (Draper Lab) to identify & implement technological breakthroughs
4) Provide technical coordination for DECD with milestone reporting
5) Engage OEM's who have Ct F35 suppliers
6) Monitor CCAT & Draper Lab activities
7) Provide quarterly reports to DECD on CCAT & Draper deliverables
8) Collect data from Draper & CCAT
9) Assist DECD in managing DOD OEA RADE 2 Task 5 (CT ITC)
10) Create a sustainability plan for the CT Innovation Technology Center (ITC)

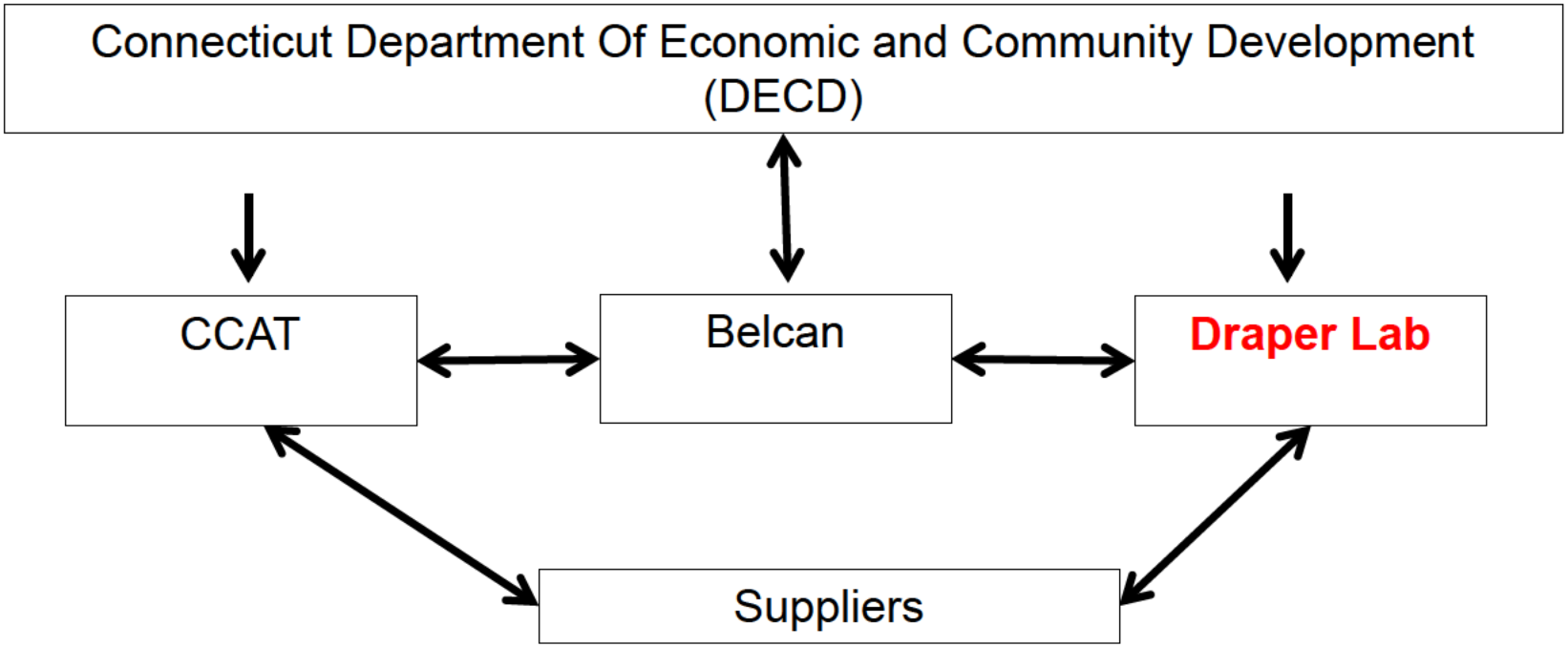
Information Flow



CCAT Roles & Responsibilities:

1) Equipment: Develop technical specifications, install, maintain and operate equipment acquired by the State located within the ITC.
2) Supplier Program Development: Lead in development of the Supplier Program offered at ITC or specific manufacturer locations approved by DECD, create standard test plans and DOE's for technology areas identified by DECD that, where possible, comply with PW & other OEM qualification processes, incorporate Draper Lab and CCAT best practices conforming to ITAR. Test plans will be tailored for each project per OEM quality requirements.
3) ITC Facility: Provide dedicated space and install state supplied equipment
4) Supplier Projects:

Information Flow



Draper Lab Roles & Responsibilities:

1) Equipment: Develop technical specifications, install, maintain and operate equipment acquired by the State located within the ITC.
2) Supplier Program Development: Lead in development of the Supplier Program offered at ITC or specific manufacturer locations approved by DECD, create standard test plans and DOE's for technology areas identified by DECD that, where possible, comply with PW & other OEM qualification processes, incorporate Draper Lab and CCAT best practices conforming to ITAR. Test plans will be tailored for each project per OEM quality requirements.
3) ITC Facility: Provide dedicated space and install state supplied equipment
4) Supplier Projects:

CONNECTICUT CENTER FOR ADVANCED TECHNOLOGY, INC.

INNOVATION TECHNOLOGY CENTER (ITC)

PROCEDURES AND GUIDELINES

November 2016

ITC Procedures and Guidelines

Introduction

The Innovation Technology Center (ITC) is created to make available technologies capable of improving the effectiveness, efficiency and productivity of suppliers in P&W's F135 program. The ITC is located in CCAT's Advanced Manufacturing Center (AMC) in East Hartford, CT. The first technology available at the ITC is Structured Light Scanning (SLS).

Details of the SLS technology:

- SLS is demonstrated using a GOM ATOS Scanbox 5108. It is a complete optical 3D measuring machine developed for efficient quality control in production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. Whereas mechanical measuring machines capture data in a point-based or linear manner, optical 3D coordinate measuring systems provide full-field deviations of the 3D actual coordinates and the CAD data. (Click Here)

Administrative Structure

The ITC was created by the State of CT Department of Economic & Community Development (DECD) in partnership with P&W, is managed by the Belcan Corporation and administered by CCAT.

Timeline

The initial term of the ITC program runs through March of 2017.

Program Goal

The goal of the ITC is to demonstrate new technologies which P&W feels are more effective, efficient and productive than those currently in use by many P&W suppliers.

Tasks

Tasks required for CCAT to administer the ITC program are;

- Recruit P&W suppliers for participation in the program
- Develop demonstration test plans in accordance with P&W supplier's requirements
- Perform demonstration projects using ITC technology
- Report results to suppliers

Assistance for CT Manufacturers

The ITC offers P&W suppliers the opportunity to conduct demonstration projects to evaluate new technologies against technologies they are currently using. This will be done by using the new technologies on real parts and comparing the results to what suppliers currently are achieving.

Cost

Most costs associated with performing a Demonstration Project will be paid for by the ITC program.

- Allowable costs are;
    - Access and use of equipment

  - Preparation of a test plan
  - Preparation and operation of equipment by CCAT personnel
  - Preparation of test report
- Unallowable costs are;
  - Shipping and receiving parts to be evaluated at the CCAT AMC

Eligible Applicants
All CT manufacturers in the P&W supply chain are eligible to apply to execute demonstration projects with CCAT under the ITC program.

Eligible Activities
Structured Light Scanning Projects – P&W suppliers will work with CCAT engineers to scan one of their parts using the GOM ATOS structured blue light scanner. CCAT engineers will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so results from the new technology can be compared to results from the current technology being used by the supplier.

The CCAT AMC is an ITAR facility.

Marketing and Outreach
CCAT will market the program to P&W suppliers in the State of CT. (Attachment A)

Application Procedure
Eligible P&W suppliers will apply by contacting Wayne Sumple at CCAT or Ken Devins at Belcan.

Evaluation/Approval Process
P&W suppliers that apply will be approved by DECD.

Reporting Requirements
CCAT will report to DECD on status of the ITC on a monthly basis. Status will include:
- Number of P&W suppliers contacted
- Number of projects being investigated, proposed, in-progress, completed or cancelled
- Summary Report for each completed Demonstration Project

Record Keeping and Retention
CCAT will maintain complete and accurate records and documents relative to the activities outlined above for a minimum of five years from the expiration of the agreement with DECD.

ITC Procedures and Guidelines

PROCESS FLOW

Preparation for a Demonstration Project

1. SME to sign Non-Disclosure Agreement (NDA)
2. SME to sign Export Control Intake Certification (ECIC)
3. SME to provide CCAT the following information for a Demonstration Project
    a. Describe part(s) to be processed
    b. Name of part
    c. # of parts
    d. Special handling instructions
    e. Format for report data
    f. Identify how part(s) will be delivered to/from ITC
        i. Supplier to hand carry to ITC
        ii. Supplier to ship to ITC

For a Structured Light Scanning Demonstration Project

4. SME to provide data on current quality measurement process
    a. Time to process (manually, CMM)
    b. Cost to process – material consumed during process
    c. Metrology criteria – list of specific measurements and dimensional values required for evaluation of SLS
5. ITC to conduct SLS Scan
6. ITC to document data gathered during SLS demonstration project
    a. Time to process (with SLS)
    b. Cost to process - material consumed during process
    c. Measurements and dimensional values required for evaluation of SLS
7. ITC to provide assistance comparing new measurements and dimensional values generated with SLS in the ITC to existing data taken by the SME at their facility
8. ITC to provide final report with data

ATTACHMENT A

Marketing Letter

ITC Procedures and Guidelines

Innovation Technology Center (ITC)

As a Connecticut manufacturer within the Pratt & Whitney F135 engine supply chain, you have the opportunity to conduct demonstration projects – at no cost to you – to compare and evaluate new technologies at the recently created Innovation Technology Center (ITC).

This service is available on a no-cost basis to 10 Connecticut manufacturers within the F135 supply chain.

The ITC, sponsored by the Connecticut Department of Economic and Community Development, is located and managed by the Connecticut Center for Advanced Technology Inc. (CCAT).

WHAT IS THE ITC?
The ITC is 1,000 square feet of lab space located within the CCAT Advanced Manufacturing Center (AMC) in East Hartford, Connecticut. It houses specific technologies capable of improving the effectiveness, efficiency and productivity of suppliers in P&W's F135 program.

WHAT IS A DEMONSTRATION PROJECT?
A demonstration project will evaluate a new technology available at the ITC against existing technologies used by Connecticut suppliers. This will be done by using the new technologies on real parts and comparing the results with current technology outcomes.

Structured Light Scanning Project - suppliers can scan a part using a GOM ATOS Scanbox 5108. It is a complete optical 3D measuring machine developed for efficient quality control in production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. CCAT AMC staff will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so that results from the new technology can be compared to results from the current technology..

WHY DO AN ITC PROJECT?
- Compare new technology results to current technology results
- Evaluate impact on effectiveness, efficiency and productivity of new technology

A Non-Disclosure Agreement (NDA) can be executed to protect the manufacturer's process knowledge. CCAT is an ITAR controlled facility.

HOW DO I APPLY?
Contact Wayne Sumple at CCAT:

Wayne Sumple
CCAT's Advanced Manufacturing Center
409 Silver Lane
East Hartford, CT. 06118
wsumple@ccat.us
860-282-4222

Note: Withheld pursuant to CGS § 1-210(b)(5)(A), (B) and CGS § 32-244(a)(13)

Summary of Overall Survey Results - ITC Project

Operation		Dimensional Inspection (CMM, White Light / Blue Light 3D Scanning)						Non-Destructive Testing (Ultrasonic, Radiographic, Magnetic Particle, Eddy Current)						Surface Treatment (Plating, Coating, Shot Peening, Vibration Finishing, Super Polishing)					
	Company Name	Technology Used (Currently In-house)	Technology Used (Currently Out-sourced)	Driver (PWA/MCL)	Part ID	Part Material	Part Size, longest side (inch)	Technology Used (Currently In-house)	Technology Used (Currently Out-sourced)	Driver (PWA/MCL)	Part ID	Part Material	Part Size, longest side (inch)	Technology Used (Currently In-house)	Technology Used (Currently Out-sourced)	Driver (PWA/MCL)	Part ID	Part Material	Part Size longest sic (inch)
	ACMT Inc.	[redacted]																	
	Admill Machine LLC																		
Aerospace Testing Lab.	Aerospace Testing Lab.																		
Aerospace Testing Lab.	Aerospace Testing Lab.																		
Aerospace Testing Lab.	Aerospace Testing Lab.																		
	Airex Rubber Prod.																		
	Alloy Specialties Inc.																		
	Bauer Inc.																		
Birken Mfg. Co. Inc.	Birken Mfg. Co. Inc.																		
Birken Mfg. Co. Inc.	Birken Mfg. Co. Inc.																		
Birken Mfg. Co. Inc.	Birken Mfg. Co. Inc.																		
Birken Mfg. Co. Inc.	Birken Mfg. Co. Inc.																		
B&E Precision Aircraft Components	B&E Precision Aircraft Components																		
B&E Precision Aircraft Components	B&E Precision Aircraft Components																		
B&E Precision Aircraft Components	B&E Precision Aircraft Components																		
	Cambridge Specialty Company Inc.																		
	Curtis-Wright Surface Technologies																		
Deburring House Inc.	Deburring House Inc.																		
Deburring House Inc.	Deburring House Inc.																		
	EDAC Technologies - Rotating Components																		
	EM Coating Services																		
	E&S Gage Inc.																		
	Flanagan Industries																		
	GKN Aerospace Newington																		
	Habco																		
Harco Labs	Harco Labs																		
Harco Labs	Harco Labs																		
	Jonal Laboratories																		
	LFI Inc.																		
	Metals Testing Company																		
New England Metal Finishing	New England Metal Finishing																		
New England Metal Finishing	New England Metal Finishing																		
New England Metal Finishing	New England Metal Finishing																		
	Numet Machining																		
	Polamer Precision																		
	Reno Machine																		
	Satellite Tool & Machine Co. Inc.																		
	TURBOCAM																		

Note: Withheld pursuant to CGS § 1-210(b)(5)(A), (B) and CGS § 32-244(a)(13)

Summary of Dimensional Survey Results - ITC Project

	Operation	Dimensional Inspection (CMM, White Light / Blue Light 3D Scanning)					
	Company Name	Technology Used (Currently In-house)	Technology Used (Currently Out-sourced)	Driver (PWA/MCL)	Part ID	Part Material	Part Size, longest sid (inch)
	ACMT, Inc.	[redacted]					
	Admill Machine LLC						
	Alloy Specialties Inc.						
	Bauer, Inc.						
Birken Mfg. Co. Inc.	Birken Mfg. Co. Inc.						
	Birken Mfg. Co. Inc.						
	Birken Mfg. Co. Inc.						
	Birken Mfg. Co. Inc.						
	B&E Precision Aircraft Components						
	Cambridge Specialty Company, Inc.						
	Curtis-Wright Surface Technologies						
Deburring House Inc.	Deburring House Inc.						
	Deburring House Inc.						
	EDAC Technologies - Rotating Components						
	EM Coating Services						
	E&S Gage, Inc.						
	Flanagan Industries						
	GKN Aerospace Newington						
	Habco						
Harco Labs	Harco Labs						
	Harco Labs						
	Jonal Laboratories						
	LFI Inc.						
	Metals Testing Company						
	Numet Machining						
	Polamer Precision						
	Reno Machine						
	Satellite Tool & Machine Co., Inc.						
	TURBOCAM						

Note: Withheld pursuant to CGS § 1-210(b)(5)(A), (B) and CGS § 32-244(a)(13)

	Summary of Non-Destructive Survey Results - ITC Project						
	Operation	Non-Destructive Testing (Ultrasonic, Radiographic, Magnetic Particle, Eddy Current)					
	Company Name	Technology Used (Currently In-house)	Technology Used (Currently Out-sourced)	Driver (PWA/MCL)	Part ID	Part Material	Part Size, longest side (inch)
	ACMT, Inc.	[redacted]					
	Admill Machine LLC						
Aerospace Testing Lab.	Aerospace Testing Lab.						
Aerospace Testing Lab.	Aerospace Testing Lab.						
Aerospace Testing Lab.	Aerospace Testing Lab.						
	Alloy Specialties Inc.						
Birken Mfg. Co. Inc.	Birken Mfg. Co. Inc.						
Birken Mfg. Co. Inc.	Birken Mfg. Co. Inc.						
Birken Mfg. Co. Inc.	Birken Mfg. Co. Inc.						
Birken Mfg. Co. Inc.	Birken Mfg. Co. Inc.						
B&E Precision Aircraft Components	B&E Precision Aircraft Components						
B&E Precision Aircraft Components	B&E Precision Aircraft Components						
B&E Precision Aircraft Components	B&E Precision Aircraft Components						
	Cambridge Specialty Company, Inc.						
	Curtis-Wright Surface Technologies						
	EDAC Technologies - Rotating Components						
	E&S Gage, Inc.						
	Flanagan Industries						
	GKN Aerospace Newington						
Harco Labs	Harco Labs						
Harco Labs	Harco Labs						
	LFI Inc.						
	Metals Testing Company						
	Polamer Precision						
	Reno Machine						
	Satellite Tool & Machine Co., Inc.						

Note: Withheld pursuant to CGS § 1-210(b)(5)(A), (B) and CGS § 32-244(a)(13)

Summary of Suface Finishing Survey Results - ITC Project						
Operation	Surface Treatment (Plating, Coating, Shot Peening, Vibration Finishing, Super Polishing)					
Company Name	Technology Used (Currently In-house)	Technology Used (Currently Out-sourced)	Driver (PWA/MCL)	Part ID	Part Material	Part Size, longest side (inch)
ACMT, Inc.	[redacted]					
Admill Machine LLC						
Alloy Specialties Inc.						
Bauer, Inc.						
Birken Mfg. Co. Inc.						
Birken Mfg. Co. Inc.						
Birken Mfg. Co. Inc.						
Birken Mfg. Co. Inc.						
B&E Precision Aircraft Components						
Cambridge Specialty Company, Inc.						
Curtis-Wright Surface Technologies						
Deburring House Inc.						
Deburring House Inc.						
EDAC Technologies - Rotating Components						
EM Coating Services						
E&S Gage, Inc.						
Flanagan Industries						
GKN Aerospace Newington						
Habco						
Harco Labs						
New England Metal Finishing						
New England Metal Finishing						
New England Metal Finishing						
Numet Machining						
Polamer Precision						
Reno Machine						
Satellite Tool & Machine Co., Inc.						
TURBOCAM						

Note: Attachment withheld pursuant to CGS § 1-210(b)(1)

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 12/20/2016 10:25:30 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: Proposed ITC Marketing Brochure
Attachments: ITC Marketing Flyer D.docx

Carmen,

Wayne has prepared the attached brochure to be used in soliciting additional suppliers participation in Task 5. Do you approve?

Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, December 20, 2016 9:59 AM
To: Devins, Kenneth
Subject: ITC

Ken – I cleaned up the marketing brochure -

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

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Note: Withheld pursuant to CGS § 1-210(b)(1)

3 - Pages

From:	Tom Maloney <tmaloney@ccat.us>
Sent time:	12/08/2016 09:12:53 AM
To:	Molina-Rios, Carmen
Cc:	'kdevins@belcan.com' (kdevins@belcan.com) <kdevins@belcan.com>; Fernandez, Barbara; Don Balducci <dballducci@ccat.us>
Subject:	RADE 2 - GKN Supplier Equipment
Attachments:	Nikon XRAY XTH225ST Data Sheet.pdf

Hell Carmen-
I have had discussion with GKN and P&W regarding equipment. Ken and I spoke briefly yesterday by phone. The priority of GKN/P&W is to obtain the CT Scan machine – model number is per the attached. Price tag is between $500K-$550K. This type of equipment is also needed for the CCAT/DECD High Rate Additive Project so it will be very useful on several levels. If needed, we can talk about possible cost sharing among EDA and High Rate Additive Programs?
Ken and I can follow up with you when you are available.
Thank you,
Tom

==========
Hello Carmen-
Thank you for your note. Yes I did speak with GKN and I know what metrology equipment is their top priority. It is a type of machine that can examine the "inside" of parts and it complements the existing GOM Atos systems that examines the "outside" of parts. Pratt&Whitney and Electric Boat – and their suppliers – will also benefit. I will work with Ken for next steps and I can talk with you at any time.
Thank you Carmen,
Tom

Dr. Thomas M. Maloney
Chief Technology Officer
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street, Suite 106
East Hartford, CT 06108
Phone: 860.282.4936 (x-436)
E-Mail: tmaloney@ccat.us

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 16, 2016 4:19 PM
To: Tom Maloney
Cc: 'kdevins@belcan.com'; Fernandez, Barbara; Don Balducci
Subject: RADE 2 - GKN Supplier Equipment

Hi Tom,

I'm following up on your conversation with Barbara where you two talked about acquiring equipment that could help GKN and its suppliers under the RADE 2 project Task 5. The purpose of this task is to increase CT companies cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest of the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

As you know Belcan has been contracted with DECD to perform the technology coordinator function of task 5. Please work with Ken Devins of Belcan to outline the next steps. Have you contacted GKN? If not maybe you and Ken can meet with GKN to understand the type of equipment. Once you two have had a chance to think through the appropriate next steps, I would like to have a conversation to bring me up to speed.

Thanks,

Carmen

Dr. Thomas M. Maloney
Chief Technology Officer
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222 Pitkin Street, Suite 106
East Hartford, CT 06108
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E-Mail: tmaloney@ccat.us

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XT H 225 ST

The XT H 225 ST is a Large Cabinet Computed Tomography (CT) system ideally suited to a wide range of materials and sample sizes especially those that are too large for other systems in the range. The system has two interchangeable sources: the Ultrafocus (reflection) target operates between 20 and 225 kV providing a flexible tool for quality laboratories, production facilities and research departments. The Nanofocus transmission target operates between 20-180 kV to give a micron-sized spot leading to sub-micron feature recognition.



The system is fully interlocked and radiation shielded to better than 1 µSv/hr on all external surfaces. This makes the XT H 225 one of the safest systems on the market whilst being fully compliant with international safety regulations.

KEY FEATURES AND BENEFITS

HIGH SPEED CT

- The XT H 225 ST has been optimized for high speed Computed Tomography and real-time X-ray visualization.
- The FAST CT™ acquisition and reconstruction software reduces sample scanning times and provides maximum throughput from the system.

HIGH QUALITY

- Full user control over imaging chain from source to image processing and reconstruction.
- X-Tek high contrast, high power micro-focus source provides X-ray penetration and resolution at 225kV.
- State of the art digital imaging system options for a wide range of applications

SAFETY BY DESIGN

- Full shielded enclosure with continuous fail-to-safe monitoring and Interlocks
- Lead-lined cabinet fully complies to DIN 54113 radiation safety standards and CE regulation

LOW THROUGH LIFE COST

- Long life open X-ray tube – with low cost consumables.
- Planned maintenance schedule throughout system life.
- Compact design – system fits through standard double-doors enabling re-location to suit your business.

EASY TO USE

- Short learning curve – operational within 3 days
- Easy and fast interchange of targets for different uses
- CT wizard™ guides an operator easily through the data acquisition
- Improved failure analysis capability through 5 axis component manipulator.
- Local language support
- Operator and supervisor control modes

TECHNICAL SPECIFICATIONS

X-ray cabinet

The cabinet is shielded to better than 1.0 µSv/hour, fully compliant with international radiation safety regulations. The cabinet features dual, independent safety interlocks on the door as well as visual warnings of X-ray status.

The system is has a sliding access door for sample loading with a large lead glass viewing window and optional fully shielded user access port for experiment/equipment services.

225 kV microfocus X-ray source

The X-ray set comprises:

- Long life 225kV X-ray tube supplied with Ultra-focus target with Tungsten target and simple filter holder
- High voltage generator and control system
- Low maintenance vacuum system
- Essential filter kit

Ultrafocus X-ray set

Operating voltage	30 to 225 kV
Beam current	0 to 1 mA
Power rating	225 W High Power
Focal spot size	3 µm below 3 W[1], rising to 225 µm at 225 W
Spot position	6 mm behind output window
Beam angle	25° included angle, conical beam
Ultra-focus target	Replaceable tungsten target can be indexed under vacuum
Filament type	Tungsten 'hairpin' – 10 supplied free within the spares kit
Target indexing	Manual rotation of target in increments – 1,000 spot positions
X-ray target	Optional 4-metal target for K-edge emission
X-ray filtration	Be output window

[1] Measured at 80kV 3W

180 kV nano-focus X-ray source

The X-ray set comprises:

- Long life 225 kV X-ray tube supplied with NanoFocus target with Tungsten target and collimator
- High voltage generator and control system
- Low maintenance vacuum system
- Basic filter kit

Nanofocus X-ray set

Operating voltage	30 to 180 kV
Beam current	0 to 1 mA
Power rating	20W[1]
Focal spot size	1µm (below 2W)[2] rising to 10 µm depending on power
Spot position	0.25 mm behind output window
Beam angle	170° included angle, conical beam
Ultra-focus target	Replaceable tungsten target can be indexed under vacuum
Filament type	Tungsten 'hairpin' – 10 supplied free within the spares kit
Target indexing	Manual rotation of target in increments – >100 spot positions
X-ray filtration	Be output window

[1] 10 W recommended for long periods

[2] Measured at 80kV 80µA

Common specifications

Tube construction	Machined from high grade aluminum and stainless steel
Vacuum system	Turbo-molecular pump backed by 2-stage rotary vane pump
Cooling system	External sealed water cooling system
Pumping time	Approx. 10 minutes from atmospheric pressure

X-ray controller

Programmable X-ray controller and software provides the following functions:

- X-ray on, X-ray off and pre-warning.
- User adjustable incremental kV steps from 30 – 225 kV in 1 kV or 5 kV steps.
- User adjustable incremental µA steps from 0 – 1000 µA in 1 µA or 5 µA steps.
- Auto-focus, auto-defocus and focus trim
- Filament life timer
- Auto conditioning
- Full diagnostics display
- Individual interlock state display

CT sample manipulator

The XT H 225 ST is supplied with a 5-axis CT and failure analysis manipulator.

Max load	50 kg
Travel	(x) 450 mm x (y) 350 mm x (z) 750 mm
Tilt axis	+/- 30 degrees
Rotate axis	n*360 degrees
Source to detector distance	1,000 mm
Geometric magnification	> 150 times
Turntable resolution	Continuous rotation with 1/1000th degree resolution

A set of general CT sample holders is supplied for ease of sample mounting.

IMAGING SYSTEMS

There are four imaging systems that can be configured in this system. The highest performance all-round detector is fitted as standard.

- Standard - Real time detector (14bit) with 1900 x 1500 pixels with an active area of 467 cm^2.
- Optional – High dynamic range sensor (16bit) with 2000 x 2000 pixels with an active area of 1600 cm^2. Max frame rate 3.5 fps full resolution.
- Optional - High dynamic range high speed sensor (16bit) 2000 x 2000 with active area of 1600 cm^2 Max frame rate 7.5 fps full resolution.

Please see accompanying detector specification for more information on optimization for your application.

IMAGE PROCESSING

Inspect-X image processor and control software includes the following features:

- Live, average, save and load images
- Inspect-X CT wizard™
- Tone curve adjustment and memory
- Programming interface

A manual detailing all features is available upon request.

SYSTEM CONTROLLER

The system is controlled by a high performance PC Workstation operating under Windows XP Professional operating system. The X-ray image and controls are presented to the user on an ergonomic twin 22" TFT monitor display.

Standard Software:

- Inspect-X – X-Tek control software for the system
- X-Tek CT Pro license (32 bit) – an advanced reconstruction for reconstructing the CT data sets
- X-Tek FastCT reconstruction engine (32 bit)
- VGStudio – CT volume rendering software

ENVIRONMENTAL SPECS

Power supply	Single power socket rated at 100-220 V, 50/60 Hz, 20 A, single phase
Temperature control	System supplied with a closed loop chiller to control the cabinet source temperature to eliminate thermal drift from measurements

SYSTEM OPTIONS

1. *High dynamic range sensor*

The high dynamic range sensor is the best dedicated CT sensor with 2000 x 2000 pixels digitized to 16 bits sensor. This optional sensor can run at 3.5 fps.

2. *High dynamic range high speed sensor*

The high dynamic range sensor is the best dedicated CT sensor with 2000 x 2000 pixels digitized to 16 bits sensor. This optional sensor can run at 7.5 fps (15 fps at half-resolution) for real-time radiographic inspection at 16-bit sensitivity.

3. *225 kV Rotating target*

An optional rotating target is available, this increases the available X-ray flux from the system by a factor of 3-5. This can be used to either increase the acquisition speed at the same signal to noise by this factor or to increase the signal to noise ratio by this factor in the same time.

4. Optional multi metal target

The standard tungsten target gives an X-ray energy spectrum which contains the bremstrahlung spectrum and the specific emission lines of Tungsten. For some materials, in particular composites, it is often better to have the specific emission at lower energies, this can be achieved by using different materials as a target. The multi metal target can be supplied with a choice of metals from Cu, Au, Ag and Mo.

5. Optional advanced filter kit

The advanced filter kit helps produce the best quality CT metrology conditions using the multi-metal target.

6. Sample holders

A selection of additional sample holder is available to increase the flexibility of the XT H 225. These include:-

- Self centering chuck
- Self centering vice

CT OPTIONS

1. Optional Advanced CT upgrade

This package upgrades the XT H 225 system to one of the fastest CT systems on the market.

The Advanced CT option includes a high performance 64-bit reconstruction workstation with following minimum specifications:

- 24GB RAM – for large volume visualization
- 1.2Tb storage – for data storage and retrieval
- 24" LCD monitor – for crisp image display
- Microsoft keyboard and mouse – for simple control

Full specifications of the Advanced CT package are available on request.

2. Additional workstations

In order to maximize the throughput from the system it is beneficial to have additional advanced CT processing stations. In order to facilitate this Nikon Metrology offers an advanced 64-bit PC specifically configured to optimize CT volume reconstruction and analysis. *Requires Option 1.*

Minimum PC specifications:

- 64-bit PC with Windows XP with 30" TFT monitor
- 32 Gb RAM

3. Workstation upgrade , 30" monitor

This replaces the 24" monitor on the reconstruction PC with a high performance 30" TFT monitor.

***4. Workstation upgrade RAM** Options*

This is additional 64Gb RAM for use with any workstation running VGStudio MAX to enable larger volume rendering.

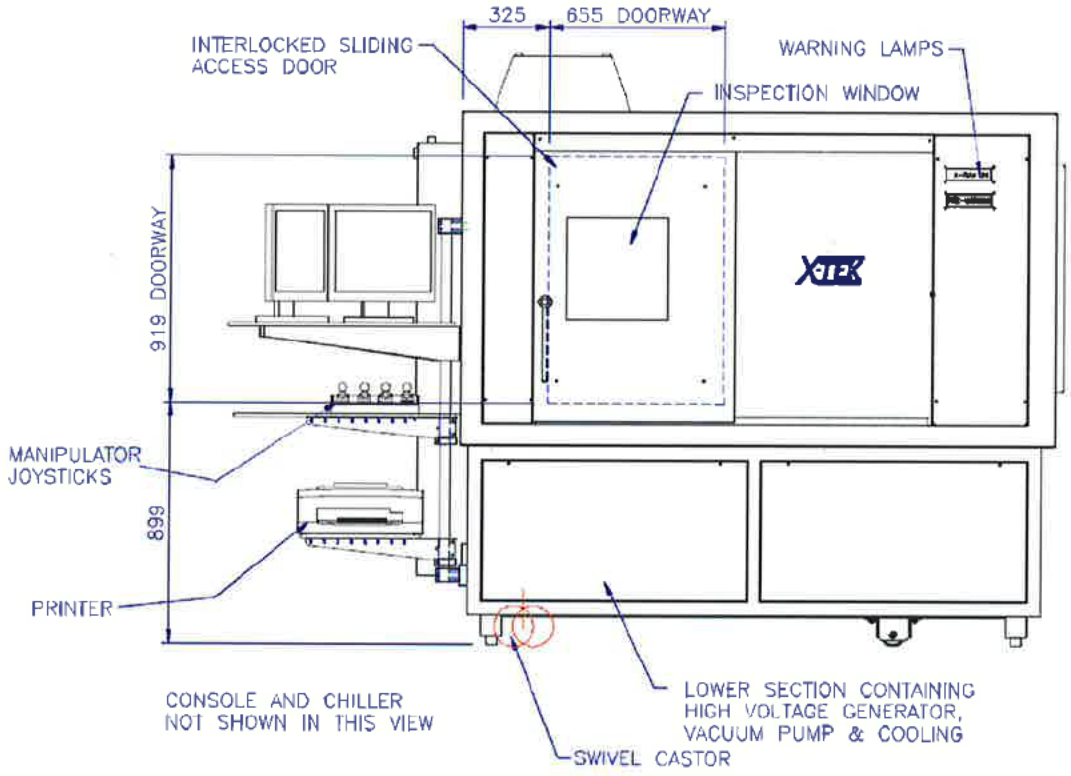
5. Volume Analysis software - upgrades

We recommend upgrading VGStudio to VGStudio MAX for use on additional workstations. There is a choice of:

- VGStudio MAX 64-bit 1 workstation license

- VGStudio MAX 64-bit 1 multi-workstation license
- Advanced analysis modules
    - Defect Analysis module
    - Wall thickness module
    - Co-ordinate measurement module
    - Cad comparison (Actual / nominal) (requires Co-ordinate measurement module)
    - Bundle module discounts for 2, 3 & 4 modules available

DIMENSIONS



Weight 4,200 kg

System dimensions: Width 2,414 mm; Depth 1,275 mm; Height 2,202 mm

DS – XTH22 5ST - 1114 - Copyright Nikon Metrology NV 2014 – All rights reserved – All specifications are subject to change without notice.

Note: Attachment withheld pursuant to CGS § 1-210(b)(1)

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 01/04/2017 10:29:25 AM
To: Molina-Rios, Carmen
Cc: Wayne Sumple <wsumple@ccat.us>
Subject: RADE 2 Task 5 Weekly Status
Attachments: ITC Marketing Flyer D.docx

Carmen,
Wayne and I planned to remove the reference to the portable inspection tool since it is not owned by the State of Connecticut.
It was added originally in order to show the range of scanning devices available.

- The M3DI SLS-SE3 is an optical 3D measuring machine developed for efficient quality control in smaller production and manufacturing processes. It is a non-contact, portable inspection tool using white light technology. (Click Here)

Should we add this back or leave it out?
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, December 23, 2016 11:52 AM
To: Devins, Kenneth; Wayne Sumple
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'; Fernandez, Barbara
Subject: RE: RADE 2 Task 5 Weekly Status

Wayne and Ken,

Attached is the revised marketing flyer for you to use. Please note the yellow sections is the revised areas and specifically, the application must be an ITC application. Make the changes to the application so that it is reflective of the RADE ITC program. Wayne, please send me the application so that I can have it for the file.

Thanks,

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, December 23, 2016 11:18 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'
Subject: RADE 2 Task 5 Weekly Status

Carmen,

1) A timeline and budget for the proposed acquisition of an x-ray scanner for the ITC has been prepared by CCAT and is attached for your review.

Installation requirements were provided in a conference call with Nikon, the x-ray scanner manufacturer, on 12/20/16. The attached quote is for $449,999.00 which will be purchased by the state. All other costs (rent for space, rigging, electrical, CCAT staff) are covered under the current CCAT ITC budget thru March 31, 2017. DECD will need to decide what it wants to do with the machines after the contract expires on March 31st.

2) A draft marketing brochure has been prepared for use in soliciting additional suppliers participation in demonstration projects in the ITC.

Flanagan (EDAC) and New England Airfoil Products are the first suppliers to agree to participate in Task 5 and their projects are due to begin in early January with parts delivered to the ITC for scanning on the GOM ATOS equipment.

The supplier list has been reviewed to select those suppliers that are most likely to have an interest in utilizing the ITC for a demonstration project.
These suppliers will receive the marketing brochure and be contacted thru phone, e-mail and face-to-face meetings to explain the benefits of utilizing the ITC for SLS technology demonstration projects.
They include:

1) GKN
2) Habco
3) Aero Gear
4) Birken
5) Reno Machine
6) Gros-ite (EDAC)
7) Whitcraft
8) Hubbell

The Sub-Tasks, Deliverables and Metrics and a status of supplier participation in Task 5 have been revised to include the above activities (See attachment).

As our next conference call is scheduled on a holiday, please let me know an alternative time to discuss progress.

Merry Christmas,
Ken

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175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Note: Withheld pursuant to CGS § 1-210(b)(1)

2 - Pages

Note: Attachment withheld pursuant to CGS § 1-210(b)(1)

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 12/16/2016 10:22:04 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: Rade 2 Task 5 Weekly Status
Attachments: DECD Weekly Status and Supplier List 121916.xlsx Justification for ITC Non-Destructive Inspection Equipment (Draft 14-Dec-2016) (2).docx

---

Carmen,

Attached is an update of Sub-Tasks, Deliverables and Metrics and a status of supplier participation in Task 5.

A draft document supporting the acquisition of the X-Ray Scanner has been prepared and attached for your review. It is entitled “Justification for Non-Destructive Inspection Equipment”. Comments have been provided to Tom Maloney and Tom and I are working on a final version.

An effort is underway to better align the Draper activities in support of the ITC. A review of the final reports submitted to DECD by Draper for Habco and Deburring House will help Belcan understand the value proposition being applied to supplier solutions. These final reports have not yet been made available to Belcan.

A conference call has been scheduled for Monday at 3PM with Draper, CCAT and Belcan participating to develop a plan to highlight ITC capability and encourage the use of the ITC equipment by suppliers working with Draper.

Belcan is working to contact Polamer Precision, Timken Aerospace Drive Systems and Whitcraft, LLC to solicit interest in Task 5 participation.

I look forward to our weekly call on Monday to discuss these and other items.

Ken

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Task 5 – Manufacturing Innovation

Increase CT Companies cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

	2016				2017			Goal
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	
Sub Tasks:								
5.1 Hire technical coordinator	In work	In work	Complete					
5.2 Acquire and/or lease machinery, equipment	In work	In work	Complete					
5.3 Installation of machinery and equipment	In work	In work	In work	Complete				
5.4 Perform outreach to supply chain	Ongoing							
5.5 Identify training needs								
5.5.1 GOM ATOS Scanner	Complete							
5.5.2 Supplier	0	0	0	2				
5.6 Deliver training (if/when appropriate)								
5.6.1 GOM ATOS Scanner			Initiated	Ongoing	Complete			
5.6.2 Supplier	0	0	0	0				
5.7 Process Improvement project implementation	See Supplier Milestones Worksheet							
5.8 Analyze/report on manufacturing innovation	Monthly						Final	
Deliverable:								
• CT Innovation Technology Center is established, operational, and staffed	In work	In work	In work	Complete				
• # Suppliers are aware of ITC and its capabilities	55	55	55	41				
• Participating companies staff trained on new processes and technologies	8	8	8	7				
• Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies	Monthly						Final	
• Manufacturing Technology Innovation Needs Statement	TBD	TBD	TBD	TBD				
Metrics:								
• A minimum of 20 supply chain companies participate	9	9	9	9				20
• A minimum of 10 projects implemented	0	0	0	0				10
• Available hours used on the equipment by suppliers	0	0	0	0				
• Number of projects	9	9	9	11				
• Equipment hours used	0	0	0	0				
• Equipment ordered by suppliers	0	0	0	0				
• Number of processes implementing by supplier in their facility	0	0	2	2				

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Milestones and Timeline

Project Type	Project Description	Supplier Name	Status	Project Lead	Contacted	NDA	Site Visit	Agreement	Letter of Intent	Project Proposal	Execute	Final Report
Scanning	[redacted]	Atlas	Active	CCAT								
Process Improvement		Avalon Advanced Tech	Active	Draper								
Equipment Recommendation		CAM Group LLC	Active	Draper			6/2/2016					
Equipment Recommendation and Engineering Services		Deburring House Inc.	Active	Draper			6/1/2016					1130/16
Equipment Recommendation		Flanagan Industries	Active	Draper			8/17/2016					
Scanning		Flanagan Industries	Active	CCAT								
Scanning		GKN Aerospace	Active	CCAT								
Process Improvement, Equipment Recommendation and Engineering Services		GKN Aerospace	Active	Draper			7/26/2016					
Process Improvement and Equipment Recommendation		Habco Industries	Active	Draper			5/4/2016					1130/16
Process Improvement and Equipment Recommendation		Jonal Laboratories, Inc.	Active	Draper			7/20/2016					
Scanning		New England Airfoil Products	Active	CCAT								
Process Improvement		Admill Machine	On Hold	Draper	9/22/2016							
Process Improvement		Aero Gear, Inc.	On Hold	Draper	9/22/2016							
Process Improvement		AGC Incorporated	On Hold	Draper	9/22/2016							
Process Improvement		Airex Rubber Products Corp.	On Hold	Draper	9/20/2016							
Process Improvement		Alinabal, Inc.	On Hold	Draper	9/22/2016							
Process Improvement		Alloy Specialties, Inc.	On Hold	Draper			6/2/2016					
Scanning		B&E Precision Aircraft Components	On Hold	CCAT								
Process Improvement		Bauer, Inc.	On Hold	Draper	9/22/2016							
Process Improvement		Birken Manufacturing	On Hold	Draper	9/22/2016							
Process Improvement		Budney Aerospace, Inc.	On Hold	Draper	9/19/2016							
Process Improvement		Cambridge Specialty Co	On Hold	Draper	4/14/2016							
Scanning		Curtis WrightSurface Technologies	On Hold	CCAT								
Process Improvement		E&S Gage Company	On Hold	Draper	9/20/2016							
Process Improvement		E.A. Patten Co	On Hold	Draper	9/22/2016							
Process Improvement		EDAC Aero.	On Hold	Draper	9/19/2016							
Process Improvement		Harco Laboratories, Inc.	On Hold	Draper	9/20/2016							
Process Improvement		Har-Conn Chrome Company	On Hold	Draper	9/20/2016							
Scanning		LFI Inc.	On Hold	CCAT								

Process Improvement	[redacted]	Metallizing Service Co.	On Hold	Draper	9/20/2016							
Process Improvement		Numet Machining Techniques, Inc.	On Hold	Draper	9/22/2016							
Process Improvement		Paradigm Precision	On Hold	Draper	10/27/2016							
Process Improvement		Praxair Surface Technologies, Inc.	On Hold	Draper	9/20/2016							
Process Improvement		Ramar-Hall, Inc.	On Hold	Draper	9/22/2016							
Process Improvement		Reno Machine Company, Inc.	On Hold	Draper	10/27/2016							
Process Improvement		Satellite Tool & Machine Co.	On Hold	Draper	9/22/2016							
Process Improvement		Service Steel Aerospace	On Hold	Draper	9/22/2016							
Process Improvement		Sterling Engineering Corp.	On Hold	Draper	9/20/2016							
Process Improvement		Turbine Technologies, Inc.	On Hold	Draper	9/20/2016							
Scanning		Turbine Technologies, Inc.	On Hold	CCAT								
Scanning		Turbocam	On Hold	CCAT								

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Screening & Participation Status

Project Type	Project Description	Supplier Name	Status	Project Lead	Results of Phone Screen	Follow Up/Notes
Scanning	[redacted]	Atlas	Active	CCAT	Investigating	[redacted]
Process Improvemen		Avalon Advanced Tech	Active	Draper	Initial Interest	
Equipment Recommendation		CAM Group LLC	Active	Draper	Confirmed Interested	
Equipment Recommendation and Engineering Services		Deburring House Inc.	Active	Draper	Confirmed Interested	
Equipment Recommendation		Flanagan Industries	Active	Draper	Confirmed Interested	
Scanning		Flanagan Industries	Active	CCAT	Investigating	
Scanning		GKN Aerospace	Active	CCAT	Investigating	
Process Improvement, Equipment Recommendation and Engineering Services		GKN Aerospace	Active	Draper	Confirmed Interested	
Process Improvemen and Equipment Recommendation		Habco Industries	Active	Draper	Confirmed Interested	
Process Improvemen and Equipment Recommendation		Jonal Laboratories, Inc.	Active	Draper	Confirmed Interested	
Scanning		New England Airfoil Products	Active	CCAT	Investigating	
Process Improvemen		Polamer Precision	On Hold	Draper	No Response	
Process Improvemen		Timken Aerospace Drive Systems	On Hold	Draper	No Response	
Process Improvemen		Whitcraft, LLC	On Hold	Draper	No Response	
Process Improvemen		Admill Machine	On Hold	Draper	Initial Interest	
Process Improvemen		Aero Gear, Inc.	On Hold	Draper	No Response	
Process Improvemen		AGC Incorporated	On Hold	Draper	No Response	
Process Improvemen		Airex Rubber Products Corp.	On Hold	Draper	No Response	
Process Improvemen		Alinabal, Inc.	On Hold	Draper	No Response	
Process Improvemen		Alloy Specialties, Inc.	On Hold	Draper	Confirmed Interested	
Scanning		B&E Precision Aircraft Components	On Hold	CCAT	Potential	
Process Improvemen		Bauer, Inc.	On Hold	Draper	Initial Interest	

Process Improvement	[redacted]	Birken Manufacturing	On Hold	Draper	No Response	[redacted]
Process Improvement		Budney Aerospace, Inc.	On Hold	Draper	Initial Interest	
Process Improvement		Cambridge Specialty Co	On Hold	Draper	No Response	
Scanning		Curtis WrightSurface Technologies	On Hold	CCAT	Potential	
Process Improvement		E&S Gage Company	On Hold	Draper	No Response	
Process Improvement		E.A. Patten Co	On Hold	Draper	No Response	
Process Improvement		EDAC Aero.	On Hold	Draper	No Response	
Process Improvement		Harco Laboratories, Inc.	On Hold	Draper	No Response	
Process Improvement		Har-Conn Chrome Company	On Hold	Draper	No Response	
Scanning		LFI Inc.	On Hold	CCAT	Potential	
Process Improvement		Metallizing Service Co.	On Hold	Draper	No Response	
Process Improvement		Numet Machining Techniques, Inc.	On Hold	Draper	Initial Interest	
Process Improvement		Paradigm Precision	On Hold	Draper	Initial Interest	
Process Improvement		Praxair Surface Technologies, Inc.	On Hold	Draper	No Response	
Process Improvement		Ramar-Hall, Inc.	On Hold	Draper	No Response	
Process Improvement		Reno Machine Company, Inc.	On Hold	Draper	Initial Interest	
Process Improvement		Satellite Tool & Machine Co.	On Hold	Draper	No Response	
Process Improvement		Service Steel Aerospace	On Hold	Draper	No Response	
Process Improvement		Sterling Engineering Corp.	On Hold	Draper	No Response	
Process Improvement		Turbine Technologies, Inc.	On Hold	Draper	No Response	
Scanning		Turbine Technologies, Inc.	On Hold	CCAT	Potential	
Scanning		Turbocam	On Hold	CCAT	Potential	

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	12/23/2016 11:17:52 AM
To:	Molina-Rios, Carmen
Cc:	Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	RADE 2 Task 5 Weekly Status
Attachments:	ITC NDI Procurement Schedule (21-Dec-2016).docx Xray Scanner Quote UHART XTH225ST 12152016.pdf Justification for ITC Non-Destructive Inspection Equipment (Draft 14-Dec....docx DECD Weekly Status and Supplier List 122616.xlsx

Carmen,

1) A timeline and budget for the proposed acquisition of an x-ray scanner for the ITC has been prepared by CCAT and is attached for your review.

Installation requirements were provided in a conference call with Nikon, the x-ray scanner manufacturer, on 12/20/16. The attached quote is for $449,999.00 which will be purchased by the state. All other costs (rent for space, rigging, electrical, CCAT staff) are covered under the current CCAT ITC budget thru March 31, 2017. DECD will need to decide what it wants to do with the machines after the contract expires on March 31st.

2) A draft marketing brochure has been prepared for use in soliciting additional suppliers participation in demonstration projects in the ITC.

Flanagan (EDAC) and New England Airfoil Products are the first suppliers to agree to participate in Task 5 and their projects are due to begin in early January with parts delivered to the ITC for scanning on the GOM ATOS equipment.

The supplier list has been reviewed to select those suppliers that are most likely to have an interest in utilizing the ITC for a demonstration project.

These suppliers will receive the marketing brochure and be contacted thru phone, e-mail and face-to-face meetings to explain the benefits of utilizing the ITC for SLS technology demonstration projects.

They include:

1) GKN
2) Habco
3) Aero Gear
4) Birken
5) Reno Machine
6) Gros-ite (EDAC)
7) Whitcraft
8) Hubbell

The Sub-Tasks, Deliverables and Metrics and a status of supplier participation in Task 5 have been revised to include the above activities (See attachment).

As our next conference call is scheduled on a holiday, please let me know an alternative time to discuss progress.

Merry Christmas,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Task 5 – Manufacturing Innovation

Increase CT Companies' cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

	2016				2017			Goal
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	
Sub Tasks:								
5.1 Hire technical coordinator	In work	In work	Complete					
5.2 Acquire and/or lease machinery, equipment	In work	In work	Complete					
5.3 Installation of machinery and equipment	In work	In work	In work	Complete				
5.4 Perform outreach to supply chain	Ongoing							
5.5 Identify training needs								
5.5.1 GOM ATOS Scanner	Complete							
5.5.2 Supplier	0	0	0	2				
5.6 Deliver training (if/when appropriate)								
5.6.1 GOM ATOS Scanner			Initiated	Ongoing	Complete			
5.6.2 Supplier	0	0	0	0				
5.7 Process Improvement project implementation	See Supplier Milestones Worksheet							
5.8 Analyze/report on manufacturing innovation	Monthly						Final	
Deliverable:								
• CT Innovation Technology Center is established, operational, and staffed	In work	In work	In work	Complete				
• # Suppliers are aware of ITC and its capabilities	55	55	55	41				
• Participating companies' staff trained on new processes and technologies	8	8	8	9				
• Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies	Monthly						Final	
• Manufacturing Technology Innovation Needs Statement	TBD	TBD	TBD	TBD				
Metrics:								
• A minimum of 20 supply chain companies participate	9	9	9	9				20
• A minimum of 10 projects implemented	0	0	0	0				10
• Available hours used on the equipment by suppliers	0	0	0	0				
• Number of projects	9	9	9	11				
• Equipment hours used	0	0	0	0				
• Equipment ordered by suppliers	0	0	0	0				
• Number of processes implementing by supplier in their facility	0	0	2	2				

Milestones and Timeline

Project Type	Project Description	Supplier Name	Status	Project Lead	Contacted	NDA	Site Visit	Agreement	Letter of Intent	Project Proposal	Execute	Final Report
Scanning	[redacted]	Aero Gear, Inc.	Active	CCAT	1/15/2017							
Scanning		Birken Manufacturing	Active	CCAT	1/15/2017							
Scanning		Flanagan Industries	Active	CCAT	12/15/2016	Yes						
Scanning		GKN Aerospace	Active	CCAT	1/15/2017	Yes						
Scanning		Gros-ite (EDAC)	Active	CCAT	1/15/2017							
Scanning		Habco Industries	Active	CCAT	1/15/2017							
Scanning		Hubbel	Active	CCAT	1/15/2017							
Scanning		New England Airfoil Products	Active	CCAT	12/15/2016							
Scanning		Reno Machine Company, Inc.	Active	CCAT	1/15/2017							
Scanning		Whitcraft	Active	CCAT	1/15/2017							
Process Improvement		Avalon Advanced Tech	Active	Draper	4/15/2016							
Equipment Recommendation		CAM Group LLC	Active	Draper	4/15/2016		6/2/2016					
Equipment Recommendation and Engineering Services		Deburring House Inc.	Active	Draper	4/15/2016		6/1/2016					1130/16
Equipment Recommendation		Flanagan Industries	Active	Draper	4/15/2016		8/17/2016					
Process Improvement, Equipment Recommendation and Engineering Services		GKN Aerospace	Active	Draper	4/15/2016		7/26/2016					
Process Improvement and Equipment Recommendation		Habco Industries	Active	Draper	4/15/2016		5/4/2016					1130/16
Process Improvement and Equipment Recommendation		Jonal Laboratories, Inc.	Active	Draper	4/15/2016		7/20/2016					
Scanning		Atlas	On Hold	CCAT								
Scanning		B&E Precision Aircraft Components	On Hold	CCAT								
Scanning		Curtis WrightSurface Technologies	On Hold	CCAT								
Scanning		LFI Inc.	On Hold	CCAT								
Scanning		Turbine Technologies, Inc.	On Hold	CCAT								
Scanning		Turbocam	On Hold	CCAT								
Process Improvement		Admill Machine	On Hold	Draper	9/22/2016							
Process Improvement		Aero Gear, Inc.	On Hold	Draper	9/22/2016							
Process Improvement		AGC Incorporated	On Hold	Draper	9/22/2016							
Process Improvement		Airex Rubber Products Corp.	On Hold	Draper	9/20/2016							
Process Improvement		Alinabal, Inc.	On Hold	Draper	9/22/2016							
Process Improvement		Alloy Specialties, Inc.	On Hold	Draper			6/2/2016					
Process Improvement		Bauer, Inc.	On Hold	Draper	9/22/2016							

Process Improvement	[redacted]	Birken Manufacturing	On Hold	Draper	9/22/2016								
Process Improvement		Budney Aerospace, Inc.	On Hold	Draper	9/19/2016								
Process Improvement		Cambridge Specialty Co	On Hold	Draper	4/14/2016								
Process Improvement		E&S Gage Company	On Hold	Draper	9/20/2016								
Process Improvement		E.A. Patten Co	On Hold	Draper	9/22/2016								
Process Improvement		EDAC Aero.	On Hold	Draper	9/19/2016								
Process Improvement		Harco Laboratories, Inc.	On Hold	Draper	9/20/2016								
Process Improvement		Har-Conn Chrome Company	On Hold	Draper	9/20/2016								
Process Improvement		Metallizing Service Co.	On Hold	Draper	9/20/2016								
Process Improvement		Numet Machining Techniques, Inc.	On Hold	Draper	9/22/2016								
Process Improvement		Paradigm Precision	On Hold	Draper	10/27/2016								
Process Improvement		Praxair Surface Technologies, Inc.	On Hold	Draper	9/20/2016								
Process Improvement		Ramar-Hall, Inc.	On Hold	Draper	9/22/2016								
Process Improvement		Reno Machine Company, Inc.	On Hold	Draper	10/27/2016								
Process Improvement		Satellite Tool & Machine Co.	On Hold	Draper	9/22/2016								
Process Improvement		Service Steel Aerospace	On Hold	Draper	9/22/2016								
Process Improvement		Sterling Engineering Corp.	On Hold	Draper	9/20/2016								
Process Improvement		Turbine Technologies, Inc.	On Hold	Draper	9/20/2016								

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Screening & Participation Status

Project Type	Project Description	Supplier Name	Status	Project Lead	Results of Phone Screen	Follow Up/Notes
Scanning	[redacted]	Aero Gear, Inc.	Active	CCAT	Investigating	Included in priority contact list.
Scanning		Birken Manufacturing	Active	CCAT	Investigating	Included in priority contact list.
Scanning		Flanagan Industries	Active	CCAT	Investigating	Flanagan Industries has agreed to participate in a demonstration project at the ITC. NDA is in place with CCAT. Part to be delivered to ITC on January 3, 2017.
Scanning		GKN Aerospace	Active	CCAT	Investigating	Included in priority contact list.
Scanning		Gros-ite (EDAC)	Active	CCAT	Investigating	Included in priority contact list.
Scanning		Habco Industries	Active	CCAT	Investigating	Included in priority contact list.
Scanning		Hubbel	Active	CCAT	Investigating	Included in priority contact list.
Scanning		New England Airfoil Products	Active	CCAT	Investigating	Included in priority contact list.
Scanning		Reno Machine Company, Inc.	Active	CCAT	Investigating	Included in priority contact list.
Scanning		Whitcraft, LLC	Active	CCAT	Investigating	Included in priority contact list.
Process Improvement		Avalon Advanced Tech	Active	Draper	Initial Interest	Spoke to QA manager 10/24, referred to president (Venod)
Equipment Recommendation		CAM Group LLC	Active	Draper	Confirmed Interested	Initial visit took place 6/2. Draper has been unable to get CAM Group to sign an NDA, which has prevented the projects from being submitted to DECD for approval.
Equipment Recommendation and Engineering Services		Deburring House Inc.	Active	Draper	Confirmed Interested	Visit took place on 6/1. Completed project.
Equipment Recommendation		Flanagan Industries	Active	Draper	Confirmed Interested	Investigating
Process Improvement, Equipment Recommendation and Engineering Services		GKN Aerospace	Active	Draper	Confirmed Interested	Initial visit took place 7/26. Actively engaged supplier
Process Improvement and Equipment Recommendation		Habco Industries	Active	Draper	Confirmed Interested	Initial visit took place 5/4. Completed project.
Process Improvement and Equipment		Jonal Laboratories, Inc.	Active	Draper	Confirmed Interested	Initial visit took place 7/20. Actively engaged supplier
Scanning		Atlas	On Hold	CCAT	Potential	
Scanning		B&E Precision Aircraft Components	On Hold	CCAT	Potential	
Scanning		Curtis WrightSurface Technologies	On Hold	CCAT	Potential	
Scanning		LFI Inc.	On Hold	CCAT	Potential	
Scanning		Turbine Technologies, Inc.	On Hold	CCAT	Potential	
Scanning		Turbocam	On Hold	CCAT	Potential	
Process Improvement		Admill Machine	On Hold	Draper	Initial Interest	Left message for Al Parlow on 9/22
Process Improvement		Aero Gear, Inc.	On Hold	Draper	No Response	Left a message for Doug Rose 9/22

Process Improvemen	[redacted]	AGC Incorporated	On Hold	Draper	No Response	Email sent to Doris Harms 3/29. Left voicemail for Shelly Anderson (President of AGC) on 9/22.
Process Improvemen		Airex Rubber Products Corp.	On Hold	Draper	No Response	Left Voicemail on 9/20
Process Improvemen		Alinabal, Inc.	On Hold	Draper	No Response	Left a message for Sam Bergami 9/22
Process Improvemen		Alloy Specialties, Inc.	On Hold	Draper	Confirmed Interested	Visit took place on 6/2. Active project work is for CAM Group. Future work anticipated to be with Alloy Specialties suppliers in addition to current CAM Group effort.
Process Improvemen		Bauer, Inc.	On Hold	Draper	Initial Interest	Left a message for Lou Auletta 9/22
Process Improvemen		Birken Manufacturing	On Hold	Draper	No Response	Left a message for Gary Connolly 9/22
Process Improvemen		Budney Aerospace, Inc.	On Hold	Draper	Initial Interest	Left message for Emir Redzic 9/19
Process Improvemen		Cambridge Specialty Co	On Hold	Draper	No Response	Spoke on 4/14 and sent information via email. Left follow up voicemail on 9/19
Process Improvemen		E&S Gage Company	On Hold	Draper	No Response	Left a message for Ronald Desjarlais 9/20
Process Improvemen		E.A. Patten Co	On Hold	Draper	No Response	Left a message for Kevin Dugan 9/22
Process Improvemen		EDAC Aero.	On Hold	Draper	No Response	Email sent to Cindy Cerrigione (Corporate quality manager) on 9/19
Process Improvemen		Harco Laboratories, Inc.	On Hold	Draper	No Response	Left message with Kelly Grattan 9/20
Process Improvemen		Har-Conn Chrome Company	On Hold	Draper	No Response	Follow up voicemail on 9/20
Process Improvemen		Metallizing Service Co.	On Hold	Draper	No Response	Left a message for Greg Whitehouse 9/20
Process Improvemen		Numet Machining Techniques, Inc.	On Hold	Draper	Initial Interest	Left message with Joe Satori 9/22
Process Improvemen		Paradigm Precision	On Hold	Draper	Initial Interest	Left voicemail for Sabrina Richmond 10/27
Process Improvemen		Polamer Precision	On Hold	Draper	No Response	Belcan follow-up
Process Improvemen		Praxair Surface Technologies, Inc.	On Hold	Draper	No Response	Left message with Bruce Pederson 9/20
Process Improvemen		Ramar-Hall, Inc.	On Hold	Draper	No Response	Left a message for Dave Ferraguto 9/22
Process Improvemen		Reno Machine Company, Inc.	On Hold	Draper	Initial Interest	Left voicemail on 10/27 with Dave Darynowski
Process Improvemen		Satellite Tool & Machine Co.	On Hold	Draper	No Response	Left a message for Jim Weikamp 9/22
Process Improvemen		Service Steel Aerospace	On Hold	Draper	No Response	Left a message for Dean Dammarell 9/22
Process Improvemen		Sterling Engineering Corp.	On Hold	Draper	No Response	Left Voicemail on 9/20
Process Improvemen		Timken Aerospace Drive Systems	On Hold	Draper	No Response	Belcan follow-up
Process Improvemen		Turbine Technologies, Inc.	On Hold	Draper	No Response	Left voicemail on 9/20
Process Improvemen		Whitcraft, LLC	On Hold	Draper	No Response	Belcan follow-up

Note: Withheld pursuant to CGS § 1-210(b)(1)

3 - Page

University of Hartford
200 Bloomfield
West Hartford, Connecticut 06117
United States of America

Attn: Chittaranjan Sahay
Tel: 860-768-4852

Nikon Metrology Inc.
12701 Grand River Road
Brighton, Michigan 48116
United States of America
Tel: 810-220-4360
Fax: 810-220-4300

Prepared and issued by:
Ken Gribble
(512) 800-5286
Ken.Gribble@nikon.com

On behalf of:
Jeremy Wieloch
Sales Manager
Mobile: (860) 881-0744
Jeremy.Wieloch@nikon.com

December 15, 2016

Nikon Reference QOT-150206-21QFT-01-A

Dear Chittaranjan,

Thank you for your recent inquiry.

We are pleased to enclose the attached offer for your review.

Should you require any further information, do not hesitate to contact us.

Sincerely,

Jeremy Wieloch
Sales Manager

Proposal

Item	Product Code	Description	Qty	Total
1		**XT H 225 ST Motorized FID - With MRA - Reflection Source - PE 1620, dual source capable to add transmission source**	1	$ 602,300.00
1.1	**XT H 225 ST Reflection Target system with MRA**		1	Incl.
		- 225 kV 225 W High power X-Ray source *- X-Ray spot size starting from 3 µm* *- Open tube with replaceable Tungsten filament for low cost of ownership* *- Basic Filter Kit* *- 5 axis sample manipulator, 50 kg maximum weight* *- Manipulator max travel of 300 mm in X, 350 mm in Y and 750 mm in Z* *- Precision rotate stage for accurate CT* *- System PC (64 bit) with 16 GB RAM* *- Twin 22" flat panel monitors* *- System temperature stabilised with external chiller* *- System shielded to < 1 µSv/hr, no special precautions needed* *- Motorized Receptacle Alignment (MRA) for electronic alignment of filament* *- Motorized FID for precise detector to source adjustments*		
1.2	**Inspect-X SW for 225 and 320 kV systems**		1	Incl.
		- Control software for CT system *- Includes 2D Radiography analysis tools*		
1.3	**XT H 225 ST PE 1620 Panel with aluminium input window**		1	Incl.
		- Perkin Elmer 1620 detector *- 400 x 400 mm area with 2000 x 2000 pixels* *- 16 bit detector with 200 micron pixels* *- Increased bit depth gives better contrast sensitivity* *- Panel speed maximum 3.5 fps*		
1.4	**Silent X-ray system chiller (120 VAC)**		1	Incl.

Total	$ 602,300.00
System discount	$ 152,301.00
Grand total	**$ 449,999.00**

Terms and Conditions

Quote validity	This quotation is valid till January 15, 2017 (30 days) and is subject in its entirety to confirmation on receipt of order
Delivery	Max. 8 week(s) from receipt of technically cleared order. Note: One at this configuration and price. Subject to prior sale without notice at any time.
Payment terms	40% payable on order – delivery period starts from receipt of payment. Net 0 days after invoice date. 55% payable upon delivery. Net 0 days after invoice date. 5% payable upon acceptance. Net 30 days after invoice date.
Warranty	12 months after acceptance as per standard Nikon Metrology Terms and Conditions (full description available at the end of this document)
Title transfer	Ownership rests with buyer upon Ex Works status including all risks and reward of ownership.
Incoterms	EXW (Ex-works) Nikon Facility Please note that 15 days after notification of readiness, storage cost can be charged in case the goods have not been picked up by your preferred forwarder. The contemplated sale is subject to applicable export control regulations and delivery time starts from receipt of export approval.
Order address	Nikon Metrology Inc. 12701 Grand River Road Brighton, Michigan 48116 United States of America Tel: 810-220-4360 Fax: 810-220-4300 Email: OrderDept.NM-US@Nikon.com
Sales Tax	Quoted prices do not include sales tax. Applicable sales tax will be charged at time of invoicing based on the current rates in your local jurisdiction. If you are sales tax exempt, please provide a sales tax exemption certificate with your purchase order.

This quotation is offered subject to the standard terms and conditions for the supply of goods and associated services referenced. Export is subject to export license regulations and written approval from Nikon Metrology, Inc.

This proposal by Nikon Metrology contains proprietary commercial, financial and technical information and is being furnished to you only for the purpose of evaluating the proposal. Further use by you or disclosure to or use by others of the information in this proposal, except as required by law is strictly prohibited without the prior written consent of Nikon Metrology.

XT H 225 ST

The XT H 225 ST is a Large Cabinet Computed Tomography (CT) system ideally suited to a wide range of materials and sample sizes especially those that are too large for other systems in the range. The system has two interchangeable sources: the Ultrafocus (reflection) target operates between 20 and 225 kV providing a flexible tool for quality laboratories, production facilities and research departments. The Nanofocus transmission target operates between 20-180 kV to give a micron-sized spot leading to sub-micron feature recognition.



The system is fully interlocked and radiation shielded to better than 1 µSv/hr on all external surfaces. This makes the XT H 225 one of the safest systems on the market whilst being fully compliant with international safety regulations.

KEY FEATURES AND BENEFITS

HIGH SPEED CT

- The XT H 225 ST has been optimized for high speed Computed Tomography and real-time X-ray visualization.
- The FAST CT™ acquisition and reconstruction software reduces sample scanning times and provides maximum throughput from the system.

HIGH QUALITY

- Full user control over imaging chain from source to image processing and reconstruction.
- X-Tek high contrast, high power micro-focus source provides X-ray penetration and resolution at 225kV.
- State of the art digital imaging system options for a wide range of applications

SAFETY BY DESIGN

- Full shielded enclosure with continuous fail-to-safe monitoring and Interlocks
- Lead-lined cabinet fully complies to DIN 54113 radiation safety standards and CE regulation

LOW THROUGH LIFE COST

- Long life open X-ray tube – with low cost consumables.
- Planned maintenance schedule throughout system life.
- Compact design – system fits through standard double-doors enabling re-location to suit your business.

EASY TO USE

- Short learning curve – operational within 3 days
- Easy and fast interchange of targets for different uses
- CT wizard™ guides an operator easily through the data acquisition
- Improved failure analysis capability through 5 axis component manipulator.
- Local language support
- Operator and supervisor control modes

TECHNICAL SPECIFICATIONS

X-ray cabinet

The cabinet is shielded to better than 1.0 µSv/hour, fully compliant with international radiation safety regulations. The cabinet features dual, independent safety interlocks on the door as well as visual warnings of X-ray status.

The system is has a sliding access door for sample loading with a large lead glass viewing window and optional fully shielded user access port for experiment/equipment services.

225 kV microfocus X-ray source

The X-ray set comprises:

- Long life 225kV X-ray tube supplied with Ultra-focus target with Tungsten target and simple filter holder
- High voltage generator and control system
- Low maintenance vacuum system
- Essential filter kit

Ultrafocus X-ray set

Operating voltage	30 to 225 kV
Beam current	0 to 1 mA
Power rating	225 W High Power
Focal spot size	3 µm below 3 W[1], rising to 225 µm at 225 W
Spot position	6 mm behind output window
Beam angle	25° included angle, conical beam
Ultra-focus target	Replaceable tungsten target can be indexed under vacuum
Filament type	Tungsten 'hairpin' – 10 supplied free within the spares kit
Target indexing	Manual rotation of target in increments – 1,000 spot positions
X-ray target	Optional 4-metal target for K-edge emission
X-ray filtration	Be output window

[1] Measured at 80kV 3W

180 kV nano-focus X-ray source

The X-ray set comprises:

- Long life 225 kV X-ray tube supplied with NanoFocus target with Tungsten target and collimator
- High voltage generator and control system
- Low maintenance vacuum system
- Basic filter kit

Nanofocus X-ray set

Operating voltage	30 to 180 kV
Beam current	0 to 1 mA
Power rating	20W[1]
Focal spot size	1µm (below 2W)[2] rising to 10 µm depending on power
Spot position	0.25 mm behind output window
Beam angle	170° included angle, conical beam
Ultra-focus target	Replaceable tungsten target can be indexed under vacuum
Filament type	Tungsten 'hairpin' – 10 supplied free within the spares kit
Target indexing	Manual rotation of target in increments – >100 spot positions
X-ray filtration	Be output window

[1] 10 W recommended for long periods

[2] Measured at 80kV 80µA

Common specifications

Tube construction	Machined from high grade aluminum and stainless steel
Vacuum system	Turbo-molecular pump backed by 2-stage rotary vane pump
Cooling system	External sealed water cooling system
Pumping time	Approx. 10 minutes from atmospheric pressure

X-ray controller

Programmable X-ray controller and software provides the following functions:

- X-ray on, X-ray off and pre-warning.
- User adjustable incremental kV steps from 30 – 225 kV in 1 kV or 5 kV steps.
- User adjustable incremental µA steps from 0 – 1000 µA in 1 µA or 5 µA steps.
- Auto-focus, auto-defocus and focus trim
- Filament life timer
- Auto conditioning
- Full diagnostics display
- Individual interlock state display

CT sample manipulator

The XT H 225 ST is supplied with a 5-axis CT and failure analysis manipulator.

Max load	50 kg
Travel	(x) 450 mm x (y) 350 mm x (z) 750 mm
Tilt axis	+/- 30 degrees
Rotate axis	n*360 degrees
Source to detector distance	1,000 mm
Geometric magnification	> 150 times
Turntable resolution	Continuous rotation with 1/1000th degree resolution

A set of general CT sample holders is supplied for ease of sample mounting.

IMAGING SYSTEMS

There are four imaging systems that can be configured in this system. The highest performance all-round detector is fitted as standard.

- Standard - Real time detector (14bit) with 1900 x 1500 pixels with an active area of 467 cm^2.
- Optional – High dynamic range sensor (16bit) with 2000 x 2000 pixels with an active area of 1600 cm^2. Max frame rate 3.5 fps full resolution.
- Optional - High dynamic range high speed sensor (16bit) 2000 x 2000 with active area of 1600 cm^2 Max frame rate 7.5 fps full resolution.

Please see accompanying detector specification for more information on optimization for your application.

IMAGE PROCESSING

Inspect-X image processor and control software includes the following features:

- Live, average, save and load images
- Inspect-X CT wizard™
- Tone curve adjustment and memory
- Programming interface

A manual detailing all features is available upon request.

SYSTEM CONTROLLER

The system is controlled by a high performance PC Workstation operating under Windows XP Professional operating system. The X-ray image and controls are presented to the user on an ergonomic twin 22" TFT monitor display.

Standard Software:

- Inspect-X – X-Tek control software for the system
- X-Tek CT Pro license (32 bit) – an advanced reconstruction for reconstructing the CT data sets
- X-Tek FastCT reconstruction engine (32 bit)
- VGStudio – CT volume rendering software

ENVIRONMENTAL SPECS

Power supply	Single power socket rated at 100-220 V, 50/60 Hz, 20 A, single phase
Temperature control	System supplied with a closed loop chiller to control the cabinet source temperature to eliminate thermal drift from measurements

SYSTEM OPTIONS

1. High dynamic range sensor

The high dynamic range sensor is the best dedicated CT sensor with 2000 x 2000 pixels digitized to 16 bits sensor. This optional sensor can run at 3.5 fps.

2. High dynamic range high speed sensor

The high dynamic range sensor is the best dedicated CT sensor with 2000 x 2000 pixels digitized to 16 bits sensor. This optional sensor can run at 7.5 fps (15 fps at half-resolution) for real-time radiographic inspection at 16-bit sensitivity.

3. 225 kV Rotating target

An optional rotating target is available, this increases the available X-ray flux from the system by a factor of 3-5. This can be used to either increase the acquisition speed at the same signal to noise by this factor or to increase the signal to noise ratio by this factor in the same time.

4. Optional multi metal target

The standard tungsten target gives an X-ray energy spectrum which contains the bremstrahlung spectrum and the specific emission lines of Tungsten. For some materials, in particular composites, it is often better to have the specific emission at lower energies, this can be achieved by using different materials as a target. The multi metal target can be supplied with a choice of metals from Cu, Au, Ag and Mo.

5. Optional advanced filter kit

The advanced filter kit helps produce the best quality CT metrology conditions using the multi-metal target.

6. Sample holders

A selection of additional sample holder is available to increase the flexibility of the XT H 225. These include:-

- Self centering chuck
- Self centering vice

CT OPTIONS

1. Optional Advanced CT upgrade

This package upgrades the XT H 225 system to one of the fastest CT systems on the market.

The Advanced CT option includes a high performance 64-bit reconstruction workstation with following minimum specifications:

- 24GB RAM – for large volume visualization
- 1.2Tb storage – for data storage and retrieval
- 24” LCD monitor – for crisp image display
- Microsoft keyboard and mouse – for simple control

Full specifications of the Advanced CT package are available on request.

2. Additional workstations

In order to maximize the throughput from the system it is beneficial to have additional advanced CT processing stations. In order to facilitate this Nikon Metrology offers an advanced 64-bit PC specifically configured to optimize CT volume reconstruction and analysis. *Requires Option 1.*

Minimum PC specifications:

- 64-bit PC with Windows XP with 30” TFT monitor
- 32 Gb RAM

3. Workstation upgrade , 30” monitor

This replaces the 24” monitor on the reconstruction PC with a high performance 30” TFT monitor.

4. Workstation upgrade RAM Options

This is additional 64Gb RAM for use with any workstation running VGStudio MAX to enable larger volume rendering.

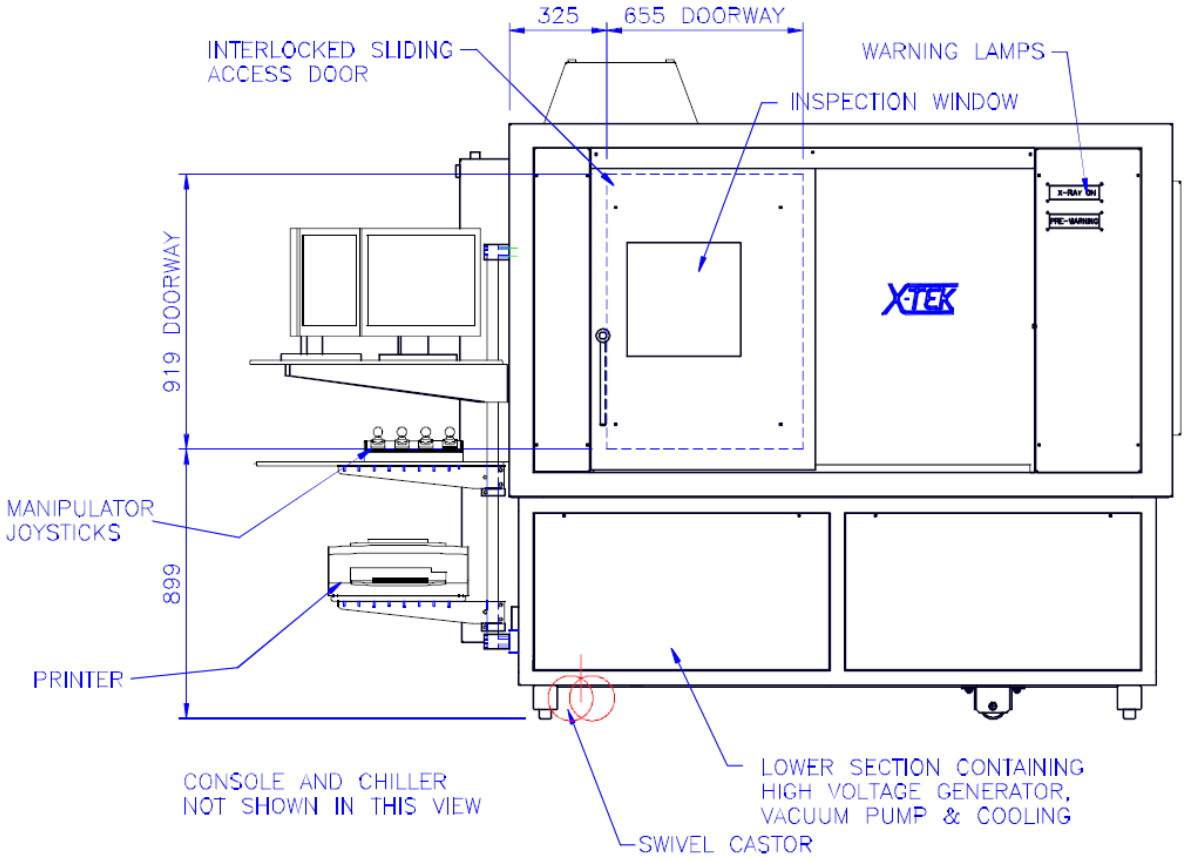
5. Volume Analysis software - upgrades

We recommend upgrading VGStudio to VGStudio MAX for use on additional workstations. There is a choice of:

- VGStudio MAX 64-bit 1 workstation license

- VGStudio MAX 64-bit 1 multi-workstation license
- Advanced analysis modules
    - Defect Analysis module
    - Wall thickness module
    - Co-ordinate measurement module
    - Cad comparison (Actual / nominal) (requires Co-ordinate measurement module)
    - Bundle module discounts for 2, 3 & 4 modules available

DIMENSIONS



Weight 4,200 kg

System dimensions: Width 2,414 mm; Depth 1,275 mm; Height 2,202 mm

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NIKON METROLOGY, INC.

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From: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Sent time: 03/13/2017 10:32:56 AM
To: Devins, Kenneth <kdevins@belcan.com>; Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>
Subject: RADE Task 5 - End Date extension - Immediate Action Requested

Hi Carmen,

What is the status of getting the end date extended on this PO? The job is currently set to expire on March 15th and once we hit that date the system will shut Belcan off from being able to charge to the job until the end date is extended. Ken will not be able to continue working it past the 15th until we receive an formal extension to the contract.

Please advise.

Thank you,
Jen

Jennifer Vesce
Systems Integration Manager
Belcan Engineering Group, LLC
175 Addison Road, Windsor CT 06095
860-683-5481
jdvesce@belcan.com

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Monday, March 13, 2017 8:57 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; Vesce, Jennifer D Belcan Engineering Group, Inc
Subject: [External] RADE Task 5 February 2017 Status Report

Carmen,

As requested a summary of RADE Task 5 activity for February is listed below:

1) To date the GOM ATOS has accumulated 550 hours on activities including informal demonstrations to visitors touring AMC, formal demonstrations to 13 companies. 4 active project and one complete project. In addition CCAT staff spent 630 hours learning how to operate GOM ATOS scanner. The activities included preparing space at the AMC for the ITC, managing the delivery and installment of the GOM ATOS, formal training provided by 3D Systems and informal training and practice on operation of hardware and software.

2) A summary of GOM ATOS projects at the CCAT/ITC is attached.
3) Draper projects with supplier participation are listed below. To date Draper is actively working 11 projects with 4 suppliers with 1 additional project submitted to DECD for approval.
   Deburring House – Closed; additional project submitted to DECD for approval. Deburring House purchased a David SLS-3 3D scanning system which will be used with the GOM Inspect software. The 3D printing system that was purchased was the MakerGear M2.
   Habco – Closed; 3 projects complete
   GKN – 3 projects in progress / 0 projects complete / 3 Total
   Jonal – 3 projects in progress / 1 project complete / 4 Total
   Additional work is required with Flanagan, Admill and Avalon to initiate projects.
   Flanagan - Currently working with Flanagan to determine best approach forward, including whether new NDA's need to be signed through EDAC.
   Admill & Avalon – Following Draper's attempt to confirm, pending verification from DECD on confirmation of interest; Draper has not received any further confirmation.
   CAM and Polar will not be participating.
   CAM - Did not wish to sign the letter of intent or NDA; updating to status to withdrawn or inactive.
   Polar –Withdrawn and stated they do not wish to participate.

4) Belcan, CCAT and Draper participated in a technical review of Task 5 with representatives of the Center for Regional

Economic Competitiveness (CREC). The agenda is attached.

The CCAT demonstration included participation of Satellite Tool & Machine president Jack Lukasik and representatives from Belcan, CCAT and CREC.

After the demonstration the CREC representatives were given a tour of the CCAT facility. The CCAT portion of the agenda was completed with a conference call with Andreas Andersson from GKN that allowed CREC to gain additional perspective on the process by which the Blue Light technology was being shared and the benefits accrued to this supplier.

The Belcan and CREC representatives then travelled to East Berlin to walk the production process at Deburring House. Representatives of Draper had arranged a tour of the facility with Steve Cyr, Quality manager. The tour included the review of a variety of parts including F135 fan rotors and a lengthy discussion of the benefits provided to the supplier. As a result of Drapers process review the supplier has purchased a Blue Light scanner and 3D printer for inclusion into their production process.

5) CREC requested and received a copy of the marketing letter that Belcan and CCAT used in soliciting supplier participation in Task 5 (See attachment).

6) With guidance from Belcan CCAT prepared a revised ITC Sustainment Proposal including cost and floor space details (See attachment).

7) Members of the Belcan supplier team met to discuss options for technology insertion business models that can be sustained without state or federal financial support. The only alternative that we have seen to be successful is when large suppliers such as GKN or prime contractors such as PW, UTC or Lockheed Martin provide support and resources. A good example of this is the teaming of the non-profit CCAT with GKN in acquiring and operating the Zimmerman composite machining system. In this case there is a potential to gain support from GKN to enhance the effectiveness of this composite equipment at CCAT with onsite inspection capability with both the GOM ATOS and the proposed Computed Tomography x-ray scanner. These types of efforts are usually targeted toward support of a specific product application and reflect a synergy with the larger companies strategic business plan. In this regard PW is already working with their aerospace industry supplier base, but could benefit from utilizing CCAT and the ITC equipment as an additional resource.

Regards,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	05/05/2017 10:15:48 AM
To:	Molina-Rios, Carmen
Cc:	Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	RADE Task 5 April 2017 Status Report
Attachments:	NSI Equipment Timeline, Milestones and Schedule CCAT. X5000. NSI Letter 4-17-17.pdf Supplier Status CCAT 4-30-17.xlsx Supplier Status Draper 4-30-17.xlsx

Carmen,

As requested a summary of RADE Task 5 activity for April is listed below:

1) Thru April the GOM ATOS has accumulated 1150 hours on activities including informal demonstrations to visitors and formal demonstrations.
2) Mallory Industries is continuing their effort to get their customer (Woodward) to accept Blue Light as an approved inspection methodology for quality acceptance.
3) CCAT/ITC has been in contact with 19 suppliers resulting in 6 active projects and 8 potential projects. Five suppliers have determined that the Blue Light technology is not applicable to their products at this time. A summary of GOM ATOS supplier projects at the CCAT/ITC is attached.
4) Draper is not planning to solicit additional suppliers beyond the current 4. Work continues to complete 13 projects with Habco, Deburring House, GKN and Jonal, and there is one potential additional project at Deburring House. Specific applications are as follows:

Deburring House –	1 3D Scanning for Final Inspection
	2 3D Printing of Production Fixtures
	3 Measurement System Analysis of Critical Inspection Points
	4 Pending – Equipment Setup for 3D Printing/Scanning
Habco	1 3D Scanning of Customer Tool Profiles
	2 RFID Embedment for Cycle Time Reduction
	3 3D Printing Equipment Recommendation
GKN	1 3D Scanning for Inspection Time Reduction
	2 Measurement System Analysis of Critical Inspection Points
	3 Trimming Process Optimization
Jonal	1 Utilization of OGP Multi-sensor CMM for Automated Inspection
	2 Continuous Non-contact Measurement of Extruded Material
	3 3D Scanning for Mold Qualification
	4 Wireless Temperature Monitoring of Molds and Presses

5) At Belcan's request Draper provided suggestions to improve the execution of future Task 5 type grant activities:
   a) Provide budget flexibility to Draper based on their assessment of potential benefits, do not specify budget limits for each supplier or project.
   b) Initial outreach to suppliers should be from DECD/Belcan, not Draper, to allay fears of a hidden agenda from Draper.
6) Belcan participated in the final training session with CCAT and Capture 3D on the GOM ATOS on 4/20/17.
7) Belcan provided a letter from NSI to DECD verifying their adherence to 'sole source' criteria defined by DECD in support of the X5000 X-Ray Scanner acquisition purchase order (See Attachment).
8) Belcan with input from NSI and CCAT submitted a tentative schedule for delivery, installation and certification of the proposed NSI X5000 X-Ray scanner assuming a 5/15/17 purchase order approval (See Attachment).

Regards,
Ken

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Knight, Crystal

From: Devins, Kenneth <kdevins@belcan.com>
Sent: Wednesday, April 19, 2017 4:19 PM
To: Molina-Rios, Carmen
Subject: NSI Equipment Timeline, Milestones and Schedule

Carmen,

Below I have provided estimated times for delivery, set-up and commissioning based on discussions with CCAT and NSI.

Once the Purchase Order is approved NSI can deliver the X5000 Scanner within 10 to 12 weeks. An additional 4 weeks is allocated for installation, training and commissioning for the equipment.

CCAT can have the site prepared within 8 weeks of the Purchase Order approval.

Thanks,
Ken

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Office Phone 860-683-5367
Cell Phone 203-584-8958

	Timeline, Milestones and Schedule	Responsible Party
Date	**Activity**	
12/15/2016	*DECD receive quote for NSI X-Ray Imaging Systems and Equipment*	*NSI*
12/31/2016	*DECD negotiations completed*	*DECD*
5/15/2017	*Purchase Order to be submitted by DECD*	*DECD*
7/10/2017	**Complete ITC room preparations to install equipment**	**CCAT**

8/7/2017	NSI equipment delivered to DECD at the ITC in East Hartford	NSI
8/11/2017	Complete rigging equipment from loading dock to final location, hook up to power	CCAT
8/25/2017	Complete set-up, installation, testing	NSI
9/4/2017	NSI equipment machine commissioned and Acceptance Test completed	NSI

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NORTH STAR IMAGING, INC.
An ITW Company

19875 S. Diamond Lake Rd.
Suite 10
Rogers, MN 55374 U.S.A.

Tel: (763) 463-5650
Fax: (763) 463-5651
Toll Free: (800) 635-8392

www.4nsi.com

To: Carmen Molina-Rios
State of Connecticut, Department of Economic Development
505 Hudson Street,
Hartford, CT 06106.

North Star Imaging X5000 Computed Tomography System

North Star Imaging (NSI) manufactures, sells and services state-of-the-art X-ray Imaging systems and CT equipment for industrial use. Our company also designs and develops the software applications used in our systems. NSI provides system solutions from low production or R&D, to high resolution/high production/high energy. NSI is an ISO 9001:2008 certified company.

North Star Imaging is the sole distributor for CT Systems in the United States (Connecticut)

The NSI X5000 225Kv DR.CT System being proposed to Connecticut Center for Advanced Technology is listed at Discount of $449,867.29. This System would retail for $590,000 to the public. NSI is providing a $140,132.71 educational discount.

Details of System Provided by North Star Imaging:

X5000 Seven Axis Manipulator
Movement of the inspection object is limited to x, z, tilt and rotation, along with detector and tube vertical movement.
Some of the other features of the X5000:
· All drives are motorized with variable speed joystick operation
· Tethered desktop control console
· Detector Manipulator:
o Focal Distance: 0” to 48" (0cm to 122cm)
o Detector and Tube Vertical Axis – 48” (122cm)
· Part Manipulator:
o X Axis / front to back translation: 33” (84cm)
o Z Axis / focal distance tube to detector translation: 48" (122cm)
o Tilt: +20 /-20 Degrees,
o CT precision nickel plated 9" rotational stage - 360 Degrees Continuous. Resolution 0.001 degree
· 250lb (113kg) static capacity (not including tilt)
· Integrated electronics
· Aluminum tool plate construction – black anodized
· Precision linear bearing rail
**Exact measurements may vary slightly at time or order based on x-ray source, detector, optional component selection, or revision*

Microfocus 225kV Directional
· Tube Voltage …25 - 225kV
· mA Range …0-3 mA
· Power …320 W max
· Focal Spot Size < 6 microns

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· Detail Recognition …< 2 microns
· 10-Meter-High Tension Cable
· Closed Loop Water Cooler

Varian Paxscan 2520DX
· 8" x 10" (203mm x 254mm) image area
· Premium CT Grade (best quality)
· Cesium Scintillator (best contrast)
· 127 micron pixel pitch. 1536x1920 pixels (approx. 3 Megapixels)
· 16 bit resolution
· 30 fps (2x2 pixel binning) image acquisition; 12.5 fps at full resolution
· Tungsten shielded to 225kV (increased lifetime)

efX Detector Qualification Software License
The efX Process Control Software is an interface that allows the user to routinely monitor digital detectors. Specifically, this module allows for the qualification of pixel mapping and the verification of the detector quality, spatial resolution, and contrast sensitivity. Also, included in this module is a SMPTE test pattern used for checking the quality of the display monitor.
To include the following:
· Pixel Mapping Qualification
· Detector Quality Check
· Spatial Resolution
· Contrast Sensitivity Check
· SMPTE Display Test Pattern

<u>efX-DR Software</u>
X-View *efX-DR* is a high-performance image analysis system with a comprehensive set of image analysis tools.
· *Windows*® based (Compatible with Windows 7 or higher)
· Multiple Windows interface
· High performance image processing and measurement functions utilizing GPU technology
· Automatic parallelization for systems with multiple CPU's and GPU's
· Live Imaging up to 30 frames per second
· Live Averaging, Live Histogram, Live line Profile, Live Rotation between portrait and landscape modes
· Live Measurements with 1 pixel resolution
· Live image gain/offset calibration and defective pixel correction
· Automatic creation of Technique sheet for operator record
· Capture video into AVI files.
· Supports digital flat panel detectors, LDA's and digital/analog cameras at 8, 10, 12 and 16 bits.
· Read and store images in TIFF 32 bit / 16 bit / 8 bit, BMP, JPEG, RAW
· Seamless integration with *efX-CT* software

<u>efX-CT FULL Computed Tomography Software</u>
efX-CT is a powerful CT software that includes CT calibration, Cone-Beam reconstruction, 3D real time visualization and analysis tools in the same interface.

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Toll Free: (800) 635-8392

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· Easy CT - A 5-steps user-friendly process from the creation of the project to the final results. Easy CT guides the user through the calibration and reconstruction process thanks to an interactive interface and automatic processes.
· AdvancedCT - The user – at anytime – can switch to the advanced mode that gives access to the full set parameters for CT reconstruction.
· Automatic Calibration - This tool has been developed to optimize cone-beam CT reconstruction process and to simplify CT and µCT equipment.
· Cone Beam Reconstruction – Fastest reconstruction times on the market. Reconstruction performed on GPU hardware.
· 3D Volume Rendering – Real time volume rendering. Export slices at any angle, create movie animations, performed localized reconstruction and more.
· 3D Surface Module - Surface extraction to CAD compatible format: Export to STL (Stereolithography), cloud points, OBJ, DXF, WRL, PLY. Visualization in wireframe mode. Map textures with reflection.

Digital Radiography & Intro to CT Training (40 hour course) (One Seat) NSI will provide (1) seats to the 40 hour ASTM/ASNT Certified DR/CT training course, held in Rogers, MN. This course follows the recommended curriculum of FWG-IDR, MAI, ASTM and ASME in a format for compliance with NAS 410 and SNT-TC-1A type Qualification/Certification programs. For more info visit: http://4nsi.com/training

NSI Advanced CT Training (40 Hour course) (One Seat)
NSI will provide one (1) seat to the 40 Hour Advanced CT Class held in Rogers, MN This unique course includes CT Technique Development training, CT Reconstruction and Post Processing training, hands on in the CT lab with access to a wide variety of CT and microCT systems. For more info visit: http://4nsi.com/training

Warranty / 1st Year (1 Visit) - Open Tube

1st Year efX-DR and efX-CT Software Updates

Shipping: Included

X5000 Crating for Shipment

Thank You

Jason Dimon
North East Technical Sales Manager | North Star Imaging
19875 S. Diamond Lake Rd
Rogers, MN 55374
Phone#: 763-200-3432
f. 763-463-5651| jdimon@4nsi.com | www.4nsi.com

NORTH STAR IMAGING, INC.
An ITW Company

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]	ITC & Supplier Complete	CCAT	[redacted]
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)	[redacted]	ITC Complete - Awaiting supplier conclusions	CCAT	[redacted]
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)	[redacted]	ITC Complete - Awaiting supplier conclusions	CCAT	[redacted]
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)	[redacted]	Active	CCAT	[redacted]
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)	[redacted]	Active	CCAT	[redacted]
Phoenix Manufacturing		Structured Light Scanning (SLS)	[redacted]	Active	CCAT	[redacted]
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
Alpha Q		Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
Polamer		Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]
Vista International Soundstik		Structured Light Scanning (SLS)	[redacted]	Investigating	CCAT	[redacted]

Aerospace Alloys		Structured Light Scanning (SLS)	[redacted]	Not interested	CCAT	[redacted]
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)		Not interested	CCAT	
Barnes Aerospace		Structured Light Scanning (SLS)		Not interested	CCAT	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Deburring House Inc.	Stephen Cyr - Quality Mgr	Equipment Recommendation and Engineering Services	[redacted]	Completed	Draper	[redacted]
GKN Aerospace	Martin Thorden - President,	Process Improvement, Equipment Recommendation and Engineering Services		Implemented	Draper	
Habco Industries	Brian Montanari President & CEO	Process Improvement and Equipment Recommendation		Completed	Draper	
Jonal Laboratories, Inc.	Marc Nemeth - President	Process Improvement and Equipment Recommendation		Implemented	Draper	
Admill Machine	Al Parlow	Process Improvement		~~Investigating~~ Inactive	Draper	

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Avalon Advanced Technologies & Repair Inc.	Vino Franklin - President, Jeffrey Kelly - Quality Mgr	Process Improvement	[redacted]	~~Investigating~~ Inactive	Draper	[redacted]
CAM Group LLC		Equipment Recommendation		~~Investigating~~ Inactive	Draper	
Flanagan Industries (EDAC)	DECD to define	Equipment Recommendation		~~Investigating~~ Inactive	Draper	
Polar Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mgr			Withdrawn	Draper	

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 09/08/2017 04:32:55 PM
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: RADE Task 5 August 2017 Invoice and Progress Report
Attachments: 8-31-17 Invoice 2262_820 3780_001.pdf NSI rad survey, acceptance, installation & training paperwork.pdf NSI Installation Schedule 8-31-17.xlsx DECD RADE 5 Status 8-31-17.xlsx Supplier Status CCAT 8-31-17.xlsx Supplier Status Draper 8-31-17.xlsx

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Carmen,

1) The invoice for Belcan services for August is attached.
2) The NSI X5000 X-ray scanner has been delivered, training complete and initial projects in work. The revised schedule and acceptance documentation is attached.
3) In a conference call Belcan briefed Marty Romitti and Randall Arthur from the Center for Regional Economic Competitiveness (CREC) on progress made during the Task 5 contract extension to assist in preparation of their third party evaluation.
4) Belcan has updated and attached status files for cumulative activities at CCAT and Draper including recent computed tomography (x-ray) activity.
5) Belcan is continuing to compile a summary of results from the suppliers that have completed projects at the ITC.
6) Belcan requests a copy of the Draper Sustainment Strategy Report for reference in the Belcan Sustainment Plan and Lessons Learned Report.

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Belcan

INVOICE

INVOICE NO.

2262820

Belcan Engineering Group, LLC
10200 Anderson Way
Cincinnati OH 45242
(513) 891-0972

Invoice Date: 08/27/17

Week Ending **08/27/17**

Customer P.O. No. ECDM1-0000013114

Belcan Job#: 3549030

Terms: Net 60 Days

CT DECD (Dept. of Economic & Comm. Dev)
Business & Econcomic Development
505 Hudson Street, 4th Floor
Hartford CT 06106-7106 USA

Prior Invoiced: $65,737.50

Attn.: Michelle Richmond

P.O. Limit: $148,500.00

RADE 2- Task 5

STOCK COMMERCIAL

Technical Contact: Rios-Molina, Carmen

ITEM	TYPE	UNITS	RATE	AMOUNT
Technology Project Manager	Straight Time	102.50	75.00	7,687.50

PLEASE REMIT TO:
Belcan Engineering Group, LLC
Lockbox 771430
1430 Solutions Center
Chicago IL 60677-1004

PLEASE REMIT THIS AMOUNT-> $ 7,687.50
IN U.S. DOLLARS THANK YOU

ORIGINAL

Task 5 – Manufacturing Innovation

Increase CT Companies' cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

Sub Tasks:

5.1 Hire technical coordinator	Complete 11/15/16		Belcan
5.2 Acquire and/or lease machinery, equipment	Complete 11/15/16		CCAT
5.3 Installation of machinery and equipment	Complete 11/15/16		CCAT
5.4 Perform outreach to supply chain	Initial survey 1/31/16, follow-up ongoing		DECD / Belcan
5.5 Identify training needs	GOM ATOS Complete 11/15/16		CCAT
5.6 Deliver training (if/when appropriate)	Complete 12/7/16		CCAT
5.7 Process Improvement project implementation	TBD		Belcan /CCAT /Draper
5.8 Analyze/report on manufacturing innovation	Preliminary scheduled for 7/20/17		Draper

Deliverable:

• CT Innovation Technology Center is established, operational, and staffed	Complete 12/15/16		CCAT
• Suppliers are aware of ITC and its capabilities	Initial survey 1/31/16, follow-up ongoing		DECD / Belcan
• Participating companies' staff trained on new processes and technologies	1/11/2017		Draper / CCAT
• Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies	Ongoing		Belcan /CCAT /Draper
• Manufacturing Technology Innovation Needs Statement	Computed Tomography		Belcan /CCAT

Metrics:

• A minimum of 20 supply chain companies participate	22	Structured Light and X-ray	Draper - 8, CCAT - 14
• A minimum of 10 projects implemented	17		Draper 13, CCAT 4
• Available hours used on the equipment by suppliers	1700		CCAT
• Number of projects	24		Belcan /CCAT /Draper
• Equipment hours used	1250		CCAT
• Equipment ordered by suppliers	Yes	See Draper reports	Draper / CCAT
• Number of processes implementing by supplier in their facility	6	See Draper reports	Draper / CCAT

	Timeline, Milestones and Schedule	
Date	**Activity**	**Responsible Party**
12/15/2016	*DECD receive quote for NSI X-Ray Imaging Systems and Equipment*	*NSI*
12/31/2016	*DECD negotiations completed*	*DECD*
~~*5/15/2017*~~ *5/30/2017*	*Purchase Order to be submitted by DECD*	*DECD*
7/24/2017	Complete ITC room preparations to install equipment	CCAT
~~8/21/2017~~ 8/14/2017	NSI equipment delivered to DECD at the ITC in East Hartford	NSI
8/25/2017	Complete rigging equipment from loading dock to final location, hook up	CCAT
~~9/8/2017~~ 8/31/17	Complete set-up, installation, testing and onsite training	NSI
~~9/18/2017~~ 9/7/17	NSI equipment machine commissioned and Acceptance Test completed	NSI / CCAT / DECD

NORTH STAR IMAGING, INC.

Service Ticket: 13008

19875 S. Diamond Lake Road
Suite 10
Rogers, MN 55374
United States

Phone:
Fax:
Date: 8/15/2017

Customer Information

Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
United States

Contact: Wayne Sumple
Phone: (860) 282-4222
Required Date:

Summary: Onsite System Training - Job #1338

Resolution:

Time:

Member	Date	Start Time - End Time	Work Type	Bill	Hours

Total: 0.00 Hours

Date Work Completed: 8/29 - 9/1 2017

Completed By: Eric Nokk _____ Signature

Eric Nokk (print name)

By acceptance of receipt and notification, customer agrees to pay all charges associated with this service request.

Customer: Wayne Sumple 8/31/17 Signature

Wayne Sumple (print name)

NORTH STAR IMAGING, INC.

An ITW Company

North Star Imaging
X-ray Imaging System

Customer Final Acceptance Form

Date: 08 / / 17
Customer: Connecticut Center for Advanced Technology
Purchase Order: ECDM1-0000013793
Model Number: X-5000 225kV CT
Serial Number: 16101338
Quote: JD004533v2

This certifies that the equipment listed above meets all purchased agreements and requirements. The system operates to customer's expectations and all equipment is in full working order. Customer's personnel have been trained and feel confident in use of the system on their own.

Customer Representative:

WAYNE SOMPLE
Print

Signature Date: 8/31/17

NSI Representative Sign/Date:

North Star Imaging, Inc.
19875 South Diamond Lake Rd.
Suite 10
Rogers, MN 55374
1-888-4NDTNSI
www.4NSI.com

NORTH STAR IMAGING, INC.

An ITW Company

North Star Imaging
X-ray Imaging System

Installation Completion Form

Installation Date Completed: 08 /23 / 17
Customer Name: Connecticut Center for Advanced Technology
Purchase Order: ECDM1-0000013793
Equipment Model Number: X-5000 225kV CT
Equipment Serial Number: 16101338
Quote # JD004533v2

This document states that NSI's representatives have performed the installation portion of the project and the system is ready for on-site training.

System training will commence per agreed upon schedule date(s).

Customer Final Acceptance of system will be documented follow training.

Customer Representative:

WAINE SIMPLE
Print

Signature

Date: 8-23-2017

NSI Representative

Sign/Date: 8-23-2017

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19875 South Diamond Lake Rd.
Suite 10
Rogers, MN 55374
1-888-4NDTNSI
www.4NSI.com

NORTH STAR IMAGING, INC.
19875 S. DIAMOND LAKE RD. SUITE 10
ROGERS, MN 55374
TEL: (763) 463-5650
FAX: (763) 463-5651
1-888-4NDTNSI
WWW.4NSI.COM

RADIATION SURVEY

CUSTOMER

Company Name: Connecticut Center for Advanced Technology (CCAT)
Address: 409 Silver Lane
City: East Hartford
State: CT Zip: 06108

Radiation Enclosure Type: ☒ Cabinet ☐ Walk-in Vault
☐ Other:

Radiation Enclosure Manufacturer: NSI Model / Serial #: X5000/16101338

Radiation Source Manufacturer: X-Ray Worx Model/Serial #: XWT-225-SE/P17-413

Maximum kV: 225kV Maximum mA: 1.33mA @ 225kV

Maximum mr/hr Reading Detected: 0

Survey Sketch:

Sketch out floor plan of radiation enclosure and indicate the location of radiation readings if radiation is detected.

Safety Interlock Check: *The safety interlock device(s) associated with the above unit has (have) been tested and the operation status of this (these) devices have been determined to be:*
☑ Operational ☐ Non Operational ☐ Non Existent

Survey Meter Used: Model Number: ND-200P Serial Number: 89574

Calibration Due: 6-7-2018

This test equipment has been checked and tested by authorized service personnel. All standards and test equipment maintained by NSI are traceable to N.I.S.T. Our Quality Control Certification Services meet ANSI Z540-1-1994. This certificate may not be reproduced except in full, without written approval by NSI.

Survey Technician: Andrew Folbre *Date:* 8-23-2017

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
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Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)		ITC & Supplier Complete	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)		Active	CCAT	
Phoenix Manufacturing		Structured Light Scanning (SLS)		Active	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)		~~Active~~ Withdrawn	CCAT	
Addaero		X-Ray		Active	CCAT	
Prospect Machine Products		X-Ray		Active	CCAT	
Aero Gear, Inc.	Doug Rose	X-Ray		Investigating	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)		Investigating	CCAT	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)		Investigating	CCAT	
Polamer		Structured Light Scanning (SLS)		Investigating	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)		Potential	CCAT	
Alpha Q		Structured Light Scanning (SLS)		Potential	CCAT	
Vista International Soundstik		Structured Light Scanning (SLS)		Potential	CCAT	
Aerospace Alloys		Structured Light Scanning (SLS)		Not interested	CCAT	
Barnes Aerospace		Structured Light Scanning (SLS)		Not interested	CCAT	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT	

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Habco Industries	Brian Montanari President & CEO	Process Improvement and Equipment Recommendation	[redacted]	Completed	Draper	[redacted]
Jonal Laboratories, Inc.	Marc Nemeth - President	Process Improvement and Equipment Recommendation	[redacted]	Implemented	Draper	[redacted]
Admill Machine	Al Parlow	Process Improvement	[redacted]	~~Investigating~~ Inactive	Draper	[redacted]

Avalon Advanced Technologies & Repair Inc.	Vino Franklin - President, Jeffrey Kelly - Quality Mgr	Process Improvement	[redacted]	~~Investigating~~ Inactive	Draper	[redacted]
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Polar Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mgr			Withdrawn	Draper	

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	03/13/2017 08:57:11 AM
To:	Molina-Rios, Carmen
Cc:	Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	RADE Task 5 February 2017 Status Report
Attachments:	CCAT-ITC Project List 022717.xlsx Connecticut RADE_Task 5 Site Visit Agenda 022417.docx ITC Marketing Flyer E.DOCX ITC Sustainment beyond Task 5 CCAT ITC Equipment Proposal 021017.pdf

Carmen,

As requested a summary of RADE Task 5 activity for February is listed below:

1) To date the GOM ATOS has accumulated 550 hours on activities including informal demonstrations to visitors touring AMC, formal demonstrations to 13 companies. 4 active project and one complete project. In addition CCAT staff spent 630 hours learning how to operate GOM ATOS scanner. The activities included preparing space at the AMC for the ITC, managing the delivery and installment of the GOM ATOS, formal training provided by 3D Systems and informal training and practice on operation of hardware and software.

2) A summary of GOM ATOS projects at the CCAT/ITC is attached.
3) Draper projects with supplier participation are listed below. To date Draper is actively working 11 projects with 4 suppliers with 1 additional project submitted to DECD for approval.
   Deburring House – Closed; additional project submitted to DECD for approval. Deburring House purchased a David SLS-3 3D scanning system which will be used with the GOM Inspect software. The 3D printing system that was purchased was the MakerGear M2.
   Habco – Closed; 3 projects complete
   GKN – 3 projects in progress / 0 projects complete / 3 Total
   Jonal – 3 projects in progress / 1 project complete / 4 Total
   Additional work is required with Flanagan, Admill and Avalon to initiate projects.
   Flanagan - Currently working with Flanagan to determine best approach forward, including whether new NDA's need to be signed through EDAC.
   Admill & Avalon – Following Draper's attempt to confirm, pending verification from DECD on confirmation of interest; Draper has not received any further confirmation.
   CAM and Polar will not be participating.
   CAM - Did not wish to sign the letter of intent or NDA; updating to status to withdrawn or inactive.
   Polar –Withdrawn and stated they do not wish to participate.

4) Belcan, CCAT and Draper participated in a technical review of Task 5 with representatives of the Center for Regional Economic Competitiveness (CREC). The agenda is attached.

The CCAT demonstration included participation of Satellite Tool & Machine president Jack Lukasik and representatives from Belcan, CCAT and CREC.
After the demonstration the CREC representatives were given a tour of the CCAT facility. The CCAT portion of the agenda was completed with a conference call with Andreas Andersson from GKN that allowed CREC to gain additional perspective on the process by which the Blue Light technology was being shared and the benefits accrued to this supplier.
The Belcan and CREC representatives then travelled to East Berlin to walk the production process at Deburring House. Representatives of Draper had arranged a tour of the facility with Steve Cyr, Quality manager. The tour included the review of a variety of parts including F135 fan rotors and a lengthy discussion of the benefits provided to the supplier. As a result of Drapers process review the supplier has purchased a Blue Light scanner and 3D printer for inclusion into their production process.

5) CREC requested and received a copy of the marketing letter that Belcan and CCAT used in soliciting supplier participation in Task 5 (See attachment).

6) With guidance from Belcan CCAT prepared a revised ITC Sustainment Proposal including cost and floor space details (See attachment).

7) Members of the Belcan supplier team met to discuss options for technology insertion business models that can be sustained without state or federal financial support. The only alternative that we have seen to be successful is when large suppliers such as GKN or prime contractors such as PW, UTC or Lockheed Martin provide support and resources. A good example of this is the teaming of the non-profit CCAT with GKN in acquiring and operating the Zimmerman composite machining system. In this case there is a potential to gain support from GKN to enhance the effectiveness of this composite equipment at CCAT with onsite inspection capability with both the GOM ATOS and the proposed Computed Tomography x-ray scanner. These types of efforts are usually targeted toward support of

a specific product application and reflect a synergy with the larger companies strategic business plan. In this regard PW is already working with their aerospace industry supplier base, but could benefit from utilizing CCAT and the ITC equipment as an additional resource.

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Knight, Crystal

From: Devins, Kenneth <kdevins@belcan.com>
Sent: Thursday, February 16, 2017 4:51 PM
To: Molina-Rios, Carmen
Cc: John Glidden
Subject: ITC Sustainment beyond Task 5

Carmen,

John provided me with the CCAT rationale for forecasting ITC sustainability costs. I have summarized it below. If additional information is required, please let me know when you are available for a conference call with John and I.

[redacted]

As far as the rigging and installation for the CT X-ray machine, CCAT has that cost covered in the ITC budget assuming it is nothing out of the ordinary. CCAT put the budget together before it was known which pieces of equipment were going to be purchased so the estimate was based on what was known at that time. However, if the equipment comes in after the contract ends, CCAT will need to find a different way to cover it. It is possible to negotiate rigging and installation as part of the purchase and this would be recommended. Training can also be negotiated as part of the purchase. Sometimes the manufacturer will throw it in as an incentive.

Thanks,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

STATE OF CONNECTICUT

Innovation Technology Center
(ITC)

CONNECTICUT CENTER FOR ADVANCED TECHNOLOGY, INC.

Proposal for Program Funding & Administration

February 10, 2017

Introduction and Foreword:

The Connecticut Center for Advanced Technology, Inc. (CCAT) respectfully submits this Economic Development Grant Proposal which seeks support for the continuation of the OEA RADE equipment currently in the Innovation Technology Center (ITC). For the period beginning immediately after the expiration of the OEA RADE program, CCAT proposes to use the acquired equipment as part of our mission to serve manufacturers with a special focus on Pratt & Whitney's supply chain for the F-135 engine.

About CCAT:

CCAT is a non-stock, tax-exempt corporation incorporated on May 3, 2004, and is funded under federal and state sponsored grants. CCAT's mission is to address 21st century economic challenges by creating partnerships which collaboratively provide services and resources to industry, academia, government and non-profit organizations that help them implement innovative solutions, increase efficiencies and improve workforce development. To be acknowledged by our clients as the "go to" resource for improving America's competitiveness and as the best practices partner for organizations and businesses with a technology focus. We will deliver value-added programs efficiently and effectively, with a bold entrepreneurial spirit, and attract the best and brightest people to our collaborative culture and landmark facilities.

Program Background and Summary:

The ITC was created as part of the OEA RADE contract with the federal government. Its purpose is to introduce new manufacturing technology to manufacturers with a particular focus on Pratt & Whitney's F-135 supply chain in preparation for future production. This Center is located at CCAT's Advanced Manufacturing Center and, as of the writing of this proposal, housed a GOM Atos Blue Light scanner purchased under the OEA RADE program as cost share. A second piece of equipment is contemplated (CT X-ray Scanning) but has not been fully defined yet.

CCAT proposes any equipment bought under the OEA RADE program become part of CCAT's AMC by means of a no-cost transfer. This equipment will continue to be used to demonstrate advanced technologies to manufacturers with a particular focus on the F-135 supply base for the same purpose for which it was originally intended. The equipment will become part of a pool of advance technology used by CCAT. CCAT will fund labor and maintenance expense using current and future federal, state and industry funding as applicable and will not require any new funding from the DECD.

Administrative Qualifications & Justification

CCAT has been involved with manufacturing technology since the company's inception in 2004. Our Advanced Manufacturing Center (AMC) serves as a national resource for applied manufacturing technology and boasts some of the most modern manufacturing equipment currently available in the marketplace. With the rapidly expanding interest in additive manufacturing, CCAT has also added both metal and plastic 3D printing capability to its inventory of advanced manufacturing equipment. CCAT recently installed a Hybrid DMG machine and is in the process of installing a new CNC Portal Milling Machine from Zimmermann for composites. The latest High Rate Additive Manufacturing (HRAM) equipment is expected to be installed later this year.

Through site visits, surveys, and research CCAT continually seeks to understand the needs of small and medium-sized manufacturers (SMMs). CCAT's history of conducting technology workshops, providing manufacturing training and productivity assessments to small and medium sized manufacturers makes it uniquely qualified to manage the additional equipment from the OEA RADE program. Included among our staff are degreed engineers and machinists with decades of combined manufacturing experience. Many individuals on our staff have also worked in manufacturing environments and understand the many unique challenges faced by manufacturers.

CCAT believes our AMC would be the best, most cost effective use of the OEA RADE equipment. CCAT has the right facility, staff, and programs to continue to effectively use this equipment in the manner it was intended. Our staff has been fully trained to use this equipment and has experience on projects with manufacturers using it. DECD would incur significant cost to rig out and move this equipment to any other location as well as potentially damaging it during a move.

The GOM Atos has already proven valuable to the manufacturing supply chain as we have received projects/inquirers from; EDAC, Flanagan, GKN, Hubbell, NEAP Phoenix, Satellite Tool, Alpha Q, Polamer, Pratt & Whitney (P&W) and Vivax Medical companies. We have also had interest from the Air Force Research Laboratory (AFRL) for measurement of artifacts to prove out the technology.

Program Summary & Procedures

1. **Overall Objective**

   CCAT's primary objective will be to make the OEA RADE equipment available to the manufacturing supply chain with a special emphasis on P&W's F-135 suppliers. CCAT will use funding from the various federal and state programs to fund this effort as well as appropriate cost share from manufacturers. We will follow whichever procedures are required by the funding source.

   CCAT will keep the equipment in good working order for the extent of its useful life, estimated to be approximately seven years. This equipment will become part of CCAT's fixed assets which are audited annually by an independent audit firm, a copy of which is supplied to the State of Connecticut each year.

2. **Management**

   The management of this equipment will be part of CCAT's AMC Directors' duties and responsibilities. He/she will be responsible for maintaining the equipment and for carrying out the objective of making it available to manufacturers and the F-135 supply chain.

3. **Reporting**

   At DECD's request, CCAT will provide a yearly summary of projects which used the OEA RADE equipment for the duration of its useful life. This summary would include:

   a.) Project description
   b.) Company
   c.) Funding source
   d.) Impact/outcome

4. **Scope of Services**

   Not applicable

5. **Budget Narrative**

   No further funds are requested after the completion of the OEA RADE program. Attachment #1 estimates future funding sources to sustain the equipment.

6. **Payment Schedule**

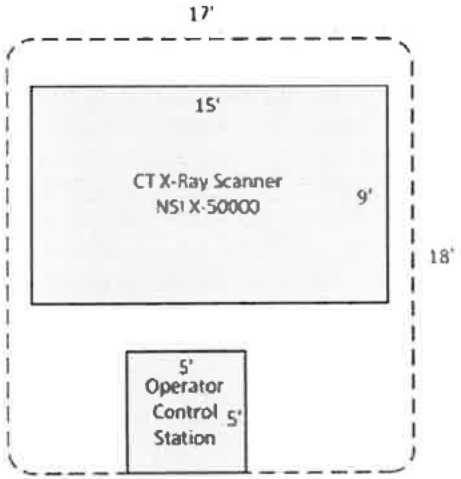
   Not applicable

Note: Withheld pursuant to CGS § 1-210(b)(5)
(B) and CGS § 32-244(a)(13)

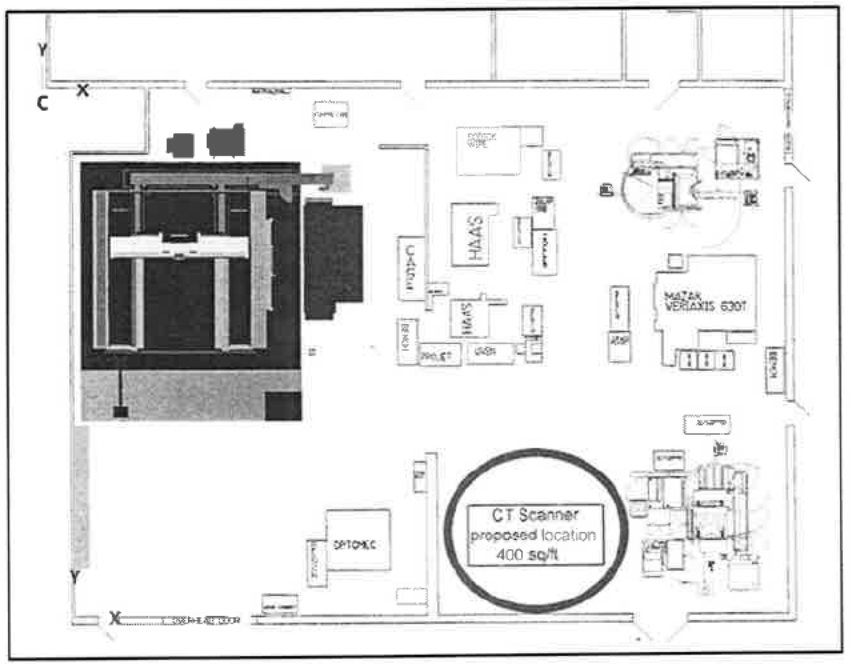
[redacted]

CT X-RAY SCANNER
NSI X5000
PLANNING DOCUMENT

- Rigging cost – assumes 15,000 pounds, delivered in crate, requiring assembly (3rd party) = $3,000
- Electrical hookup – assumes 208 voltage installed by 3rd party = $2,000
- Required Space = 306 ft2 per documents provided by NSI see sketch A below
- Available Space on AMC main floor = 400 ft2 located per sketch B below



Sketch A
Required space = 306 ft^2



Sketch B
Available space = 400 ft2

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

PRGM COMPANY PROJECT T' PROP # PHASE PROJECT DESCRIPTION STATUS PROJECT LE PROJ END SURVEY Sen SURVEY Rec'd

PRGM	COMPANY	PROJECT TYPE	PROP #	PHASE	PROJECT DESCRIPTION	STATUS	PROJECT LEAD	PROJ END DATE	SURVEY Sent	SURVEY Rec'd
ITC	Hubbell	scanning				investigating	Wayne			
ITC	CT Tool	scanning				investigating	Wayne			
ITC	Satelite Tool	scanning				investigating	Wayne			
ITC	Polamer	scanning				investigating	Nasir			
ITC	Alpha Q	scanning				investigating	Nasir			
ITC	EDAC	scanning				investigating	Wayne			
ITC	Aerospace Alloys	scanning				investigating	Wayne			
ITC	Phoenix Manufacturing	scanning	1730			in-progress	Don			
ITC	NEAP	scanning				in-progress	Nasir			
ITC	Flanagan	scanning				in-progress	Nasir			
ITC	GKN Newington	scanning	1618			complete	Nasir	23-Jan		
ITC	Barnes Aerospace	scanning				cancelled	Wayne			

Connecticut RADE – Task 5 Site Visit

CREC – February 24, 2017

8:00 – 9:30 am CCAT Advanced Manufacturing Center

Contact: Don Balducci, CCAT
Address: 409 Silver Lane City East Hartford, CT 06118
Phone: 860 282-4942
Email: dbalducci@ccat.us
- See OEA grant purchased Blue Light Inspection Machine

10:30 – noon DRAPER Company Visit: Deburring House

Contact: Bryan Wittstein, Draper Laboratories
Company Address: 230 Berlin Street, East Berlin, CT 06023
Phone: 617-258-1519
Email: bwittstein@draper.com
- Deburring's capabilities include a wide range of edge and surface conditioning processes to meet the varied needs of the precision machining industry.

Noon - 1:30 pm Lunch w/ Draper & Belcan Engineering

Contact: Ken Devins, Belcan Engineering
Address: TBD
Phone: 203-584-8958
Email: kdevins@belcan.com

2:30 - 4:30 pm Wrap-Up Session (DECD, CCAT, Belcan, Draper)

Contact: Sue Palisano, CCAT
Address: 222 Pitkin Street, East Hartford CT 06108
Phone: 860-282-4224
Email: spalisano@ccat.us
- Phone calls with companies using Task 5 equipment; other issues

Contact: Carmen Molina-Rios, DECD
Phone: 203.886.8353
Email: Carmen.molinarios@ct.gov

To Airport

Center for Regional Economic Competitiveness (CREC) Staff

Marty Romitti, Ph.D. CREC
mromitti@crec.net
cell: 573.808.1536

Randall Arthur, CREC
rarthur@crec.net
cell: 908.477.9471

Charlie Braunlich, CREC
cbraunlich@crec.net
cell: 517.410.4941

Innovation Technology Center (ITC)

The State of Connecticut is looking for Connecticut defense manufacturers who want to evaluate if Structured Light Scanning (SLS) technology works for them. CT manufacturers can have a Demonstration Project performed at the newly constructed ITC. The ITC is sponsored by the Department of Defense Office of Economic Adjustment and the Connecticut Department of Economic and Community Development. The ITC is 1000 ft^2 of lab space managed by the Connecticut Center for Advanced Technology Inc. (CCAT) in East Hartford. There is no cost to participate.

WHAT IS A DEMONSTRATION PROJECT?

A demonstration project will allow CT manufacturers to evaluate structured light scanning technology against technologies (CMM or manual inspections) they are currently using. This will be done by using new technology on real parts and comparing results to what suppliers currently are achieving. A Structured Light Scanning Demonstration Project will allow suppliers to have one of their own manufactured parts scanned using the structured, blue light scanner available at the ITC:

- The GOM ATOS Scanbox 5108 is an optical 3D measuring machine developed for quality control in larger production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. (GOM Website)

CCAT personnel will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so that results from the new technology can be compared directly to results from the current technology being used by the supplier.

WHY DO AN SLS DEMONSTRATION PROJECT AT THE ITC?

- Mechanical measuring machines capture data in a point-based or linear manner while optical 3D coordinate measuring systems provide full-field deviations of 3D actual coordinates and CAD data
- The GOM ATOS machine is one example of optical scanning technology
- Compare new technology capabilities to current technology capabilities
- Evaluate impact on effectiveness, efficiency and productivity of new technology
- A Demonstration Project is FREE to CT defense manufacturers

A Non-Disclosure Agreement (NDA) can be executed to protect the manufacturer's process knowledge. CCAT is an ITAR controlled facility.

HOW DO I APPLY?

Complete the simple on-line application by going to the ITC Assistance Application and checking the box for "Structured light scanning/reverse engineering", or contact Mr. Wayne Sumple at CCAT or Mr. Ken Devins at Belcan.

Wayne Sumple
CCAT's Advanced Manufacturing Center
409 Silver Lane
East Hartford, CT. 06118
wsumple@ccat.us
860-282-4222

Ken Devins
Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
kdevins@belcan.com
860-683-5367

DEMONSTRATION PROJECT PROCESS

1. CT manufacturer to sign Non-Disclosure Agreement (NDA)
2. CT manufacturer to sign Export Control Intake Certification (ECIC)
3. CT manufacturer to complete Assistance Application for Structured Light Scanning
    a. Describe part(s) to be scanned
        i. Name of part
        ii. # of parts
        iii. Special handling instructions
    b. STRUCTURED LIGHT SCANNING (SLS)
        i. Identify data to be gathered during SLS demonstration project
            1. Time to process
            2. Cost to process - material consumed during process
            3. Metrology criteria – list of specific measurements or dimensional values required for evaluation of SLS
            4. Comparison of new measurements or dimensional values generated with SLS in the ITC to existing data taken by the SME at their facility
            5. Shipping/receiving instructions
    c. Provide format for report data
    d. Identify how part(s) will be delivered to/from ITC
        i. Supplier to hand carry to ITC
        ii. Supplier to ship to ITC

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	02/10/2017 02:14:58 PM
To:	Molina-Rios, Carmen
Cc:	Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	RADE Task 5 January 2017 Progress Report
Attachments:	ITC Marketing Flyer E.docx Supplier Status Draper 2-3-17.xlsx Supplier Status CCAT 2-3-17.xlsx CCAT ITC Equipment Proposal 020217.pdf AW: your inquiry AW: your inquiry RE: CT scanning with GE CCAT UHART Nikon XTH225ST 12152016.pdf CCAT ProCon Quote 0746_001.pdf CCAT geit-31319_en_vtomex_sm_03_16_metrology_scatter.pdf CCAT ProCon CT-ALPHA_EN.pdf CCAT NSI X5000 DR.CT System Quot....pdf X-ray Supplier Details 2-1-17.xlsx X-ray scanner comparison 2-1-17.xlsx

Carmen,

As requested a summary of RADE Task 5 activity for January is listed below:

CCAT accepted delivery of the GOM ATOS blue light scanner and worked with 3DSystems to install, de-bug and the calibrate equipment.

Completed GOM ATOS training provided by 3DSystems.

3) A Marketing brochure was prepared and submitted to selected suppliers for their consideration in concert with conference calls to discuss specific projects that could be performed demonstrating the GOM ATOS Blue Light Scanner capabilities (See Attachment).
4) Six additional suppliers began participating at the CCAT ITC in January for a total of nine to date.
5) Two Draper projects and one CCAT/ITC project were completed in January (See Attachments).
6) Nine additional suppliers were introduced to the CCAT/ITC thru Belcan contacts. Further discussions with 3 of these suppliers have so far added one active project.
7) A Sustainability proposal was prepared and delivered from CCAT to DECD identifying a means of continuing the ITC beyond the completion of the RADE Task 5 contract (See Attachment).
8) Demonstrations and quotes were solicited from four manufacturers of Computed Tomography X-ray Scanning equipment to support the selection of an optimal solution for adding this technology and capability to the ITC. Based on the teams evaluation the North Start Imaging X5000 is preferred over the Nikon, GE and ProCon offerings and accommodates the largest part size (See Attachments).

Please let me know if there are any questions.
Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Gudat, Joachim
To: Wayne Sumple
Subject: AW: your inquiry
Date: Thursday, January 19, 2017 10:07:29 AM
Attachments: image007.png
image008.jpg
image001.png
image003.jpg
31.66-00.00_Zusammenbau_11.jpg

Feature	Nikon 225	CT-ALPHA
Approx. Part Size / Area Capability	14" x 17"	19"diameter x 24 " height
Part Weight Limit	50 kg	90 kg
Motorized axes		6
Smallest 3D detail		3µm
X-ray Source	225 kV	225 kV, 300 Watts
X-ray Spot Size	3-225 µm	3-200 µm
X-ray Detector	127-200 µm	138 µm 420 x 420 mm, 3000 x 3000 pixels

Dear Wayne,
this configuration has a delivery of 16 weeks, it comes with all software, including offset-CT, fast-CT, helix-CT, artifact reductions, fast graphical reconstruction. Price tag: € 425,000.-. It could be optionally configured to accommodate a second tube and two additional detectors in the future.
Best regards

Joachim Gudat

ProCon X-Ray GmbH
Ludwig-Erhard-Ring 6A
D-31157 Sarstedt
Tel +49 5066 98414 0
Fax +49 5066 98414 99
www.procon-x-ray.de
Joachim.Gudat@procon-x-ray.de

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HRB Hildesheim 203861 StNr.30/213/03554 USt-Ident DE156270754

Von: Wayne Sumple [mailto:wsumple@ccat.us]
Gesendet: Mittwoch, 18. Januar 2017 22:07
An: Gudat, Joachim <Joachim.Gudat@procon-x-ray.de>
Betreff: RE: your inquiry

Dear Joachim,
Thank you very much for the fast response. My customer has asked me to look for a machine similar to the Nikon 225. Approximately how much would a CT-ALPHA cost if it were configured similar to the following specs? And how fast could I have it delivered?

Feature	Nikon 225	CT-ALPHA
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From: Gudat, Joachim [mailto:Joachim.Gudat@procon-x-ray.de]
Sent: Wednesday, January 18, 2017 2:57 PM
To: Wayne Sumple
Cc: Kirste, Andreas
Subject: your inquiry

Dear Wayne,
I take the opportunity and answer your mail.
First of all, I thank you for your interest in our products.
The price range of regular ALPHA Systems is from € 300 k up to € 600 k.
X-Ray power and Flat Panel size are the main cost drivers. So it would be pretty important to know the material density and dimensions as well as your target applications, scanning speed, resolution, laboratory or production.
The CT-ALPHA concept allows us to tailor a system configuration very close to your needs: cabinet size, dual tube, multiple detectors, fast scan, high precision scan, offset scan, HELIX scan, stitched scan and so on. We compensate artefacts, geometrical inaccuracies, we reconstruct fast and compact. We offer interfaces to various visualization software. We install, train, and provide first level support through internet.
Our regular delivery time is 19 weeks.
Looking forward to our ongoing communication.

Best regards

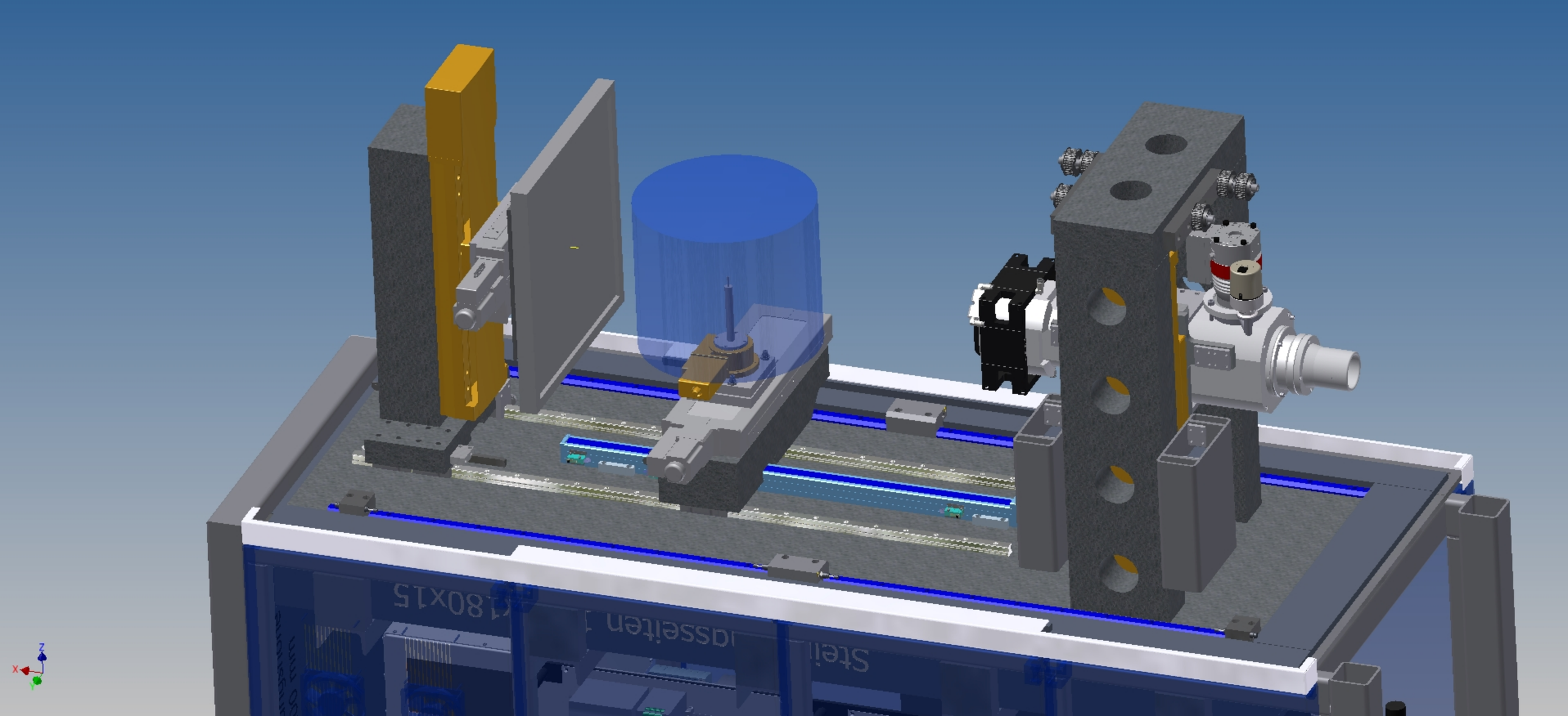
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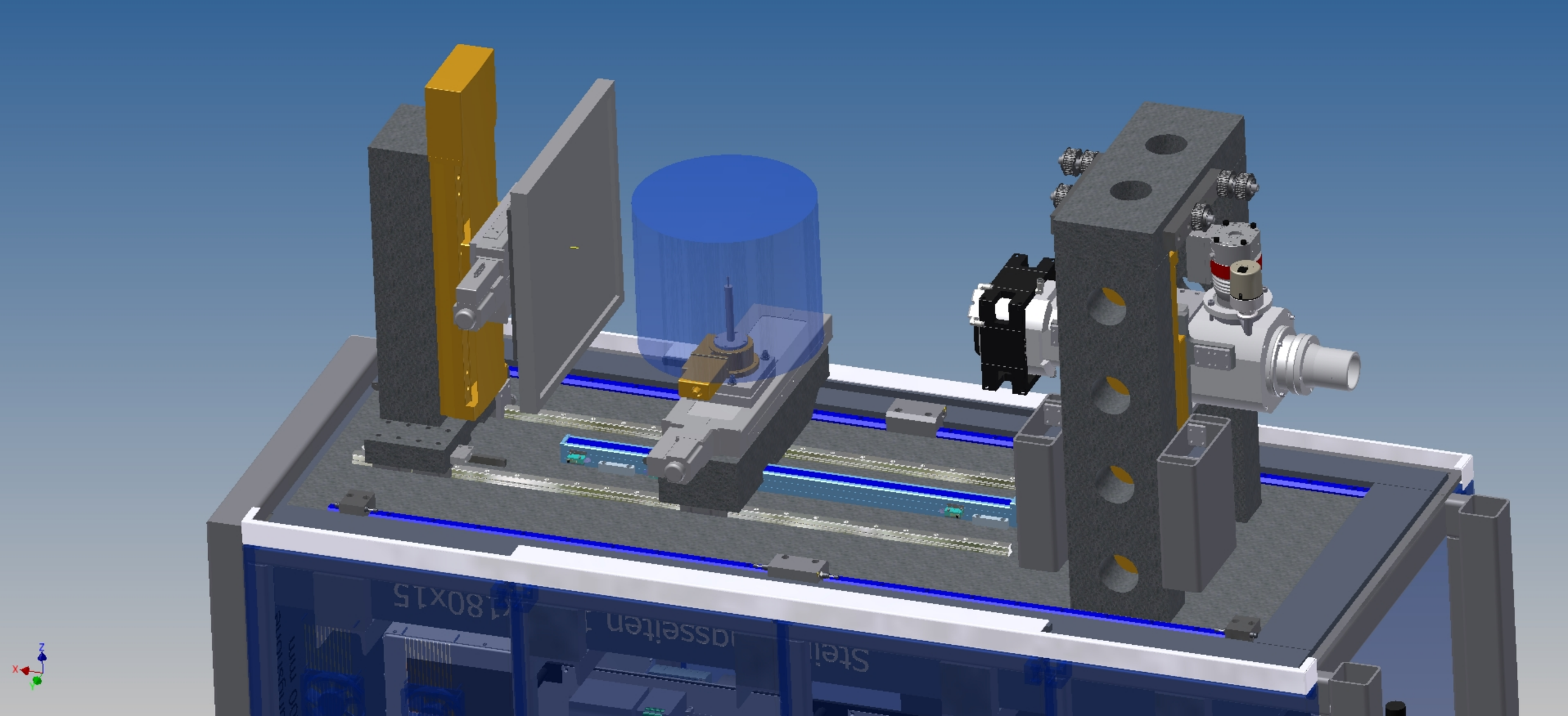
Joachim Gudat

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Geschäftsführer: Joachim Gudat, ProCon X-Ray GmbH, Ludwig-Erhard-Ring 6A, 31157 Sarstedt
HRB Hildesheim 203861 StNr.30/213/03554 USt-Ident DE156270754

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From: Bednar, Jim (GE Oil & Gas)
To: Wayne Sumple
Subject: RE: CT scanning with GE
Date: Wednesday, January 18, 2017 5:25:12 PM
Attachments: geit-31319_en_vtomex_sm_03_16_metrology_scatter.pdf

---

Wayne,

That budget would be about right for the v|tome|x s240.

See the flyer attached to this email and let me know if you think it can fit the bill.

Thanks,

Jim

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Wednesday, January 18, 2017 4:55 PM
To: Bednar, Jim (GE Oil & Gas) <jim.bednar@ge.com>
Subject: EXT: RE: CT scanning with GE

Jim - I have a budget of $450K. Which GE CT X-ray scanner is the best that I can get for that amount of money. Aerospace parts, jet engine parts, additive manufactured parts, not small parts, but not huge either. Metal, plastic and composite material. Laboratory environment. Will be used to demonstrate CT X-ray scanning technology to all sorts of manufacturing companies in region. Customer asked me to start out looking at the Nikon 225, but I don't really have much to compare it to.
Is there a GE model similar? If so, is it in my budget? How about delivery schedule?

Feature	Nikon 225
Approx. Part Size / Area Capability	14" x 17"
Part Weight Limit	50 kg
Smallest 3D detail	
X-ray Source	225 kV
X-ray Spot Size	3-225 µm
X-ray Detector	127-200 µm

From: Bednar, Jim (GE Oil & Gas) [mailto:jim.bednar@ge.com]
Sent: Wednesday, January 18, 2017 2:24 PM
To: Wayne Sumple
Subject: CT scanning with GE

Hello Mr. Sumple,

I was forwarded your contact information as someone who is interested in GE's products & services surrounding CT scanning.

After reviewing your website, I see that you are doing to Additive Manufacturing, which is a topic that is near and dear to my heart personally (I sold AM services for 4 years) and of course GE's. If you are mainly interested in looking at parts made via Additive, I can tell you that most GE facilities that do metals AM use the v|tome|x series of scanners, mostly skewing toward the c450 as it has enough power to get through dense materials and relatively thick walls.

I've attached a brochure on that scanner for your review.

The scanners all have a high level of customization available from software to part manipulators and a whole host of other options. But for purposes of providing a ballpark amount, the c450 typically sells for around $1 million, plus or minus 15%.

If you can tell me a little more about the type of parts you are planning to scan, what exactly you are looking for and maybe your budget range, I can help you to find a suitable solution within the family of products that GE has available.

I appreciate your time and I look forward to hearing from you.

Best regards,

Jim Bednar
Key Account Sales Manager – Radiography
GE Inspection Technologies

M (216) 218-9611
E jim.bednar@ge.com

GE imagination at work
www.ge-mcs.com

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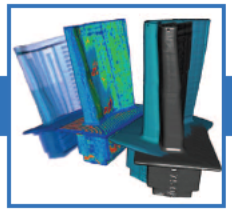
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GE
Inspection Technologies

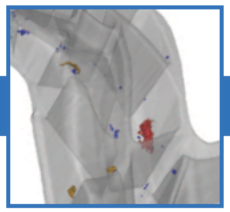
First industrial microCT system with advanced scatter|correct technology

phoenix v|tome|x m

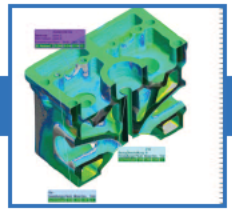
Powerful versatile X-ray microfocus CT system for 3D metrology and analysis with up to 300 kV / 500 W



3D analyses of a scanned turbine blade.



Automatic pore volume analysis in an aluminum casting.



3D measurements and nominal-actual CAD comparison on an aluminum cylinder head.

Key features & benefits

- scatter|correct: highly improved CT quality level compared to conventional mikrofocus cone beam CT
- Industry leading magnification and power at 300 kV for high absorbing samples on a wide application range
- Unique dual|tube configuration for high power µCT as well as high resolution nanoCT®
- First compact 300 kV microfocus CT system with < 1 µm detail detectability
- metrology|edition for precision measurements with up to 4+L/100 µm referring to VDI 2630 guideline*
- Max. sample size up to 500 mm Ø x 600 mm in height; 3D scanning area max. 290 mm Ø x 400 mm; up to 50 kg (110 lbs.)

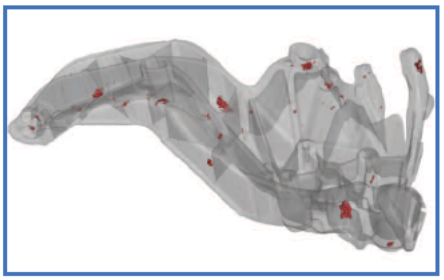


phoenix v|tome|x m

High-end tool for 3D industrial and scientific analysis tasks

Within the phoenix v|tome|x m, GE's unique 300 kV microfocus X-ray tube is for the first time available in a compact CT system for industrial process control as well as for scientific research applications. Beyond down to < 1 µm detail detectability, the system offers industry leading magnification and power at 300 kV. GE's high dynamic DXR digital detector array and the click & measure|CT automatization functionality make it an efficient 3D tool for industrial inspection and scientific research. Due to its dual|tube configuration, detailed 3D information for an extremely wide sample range is provided: from high resolution nanoCT® of low absorbing samples up to high power µCT applications such as turbine blade inspection.

Industrial non-destructive 3D testing

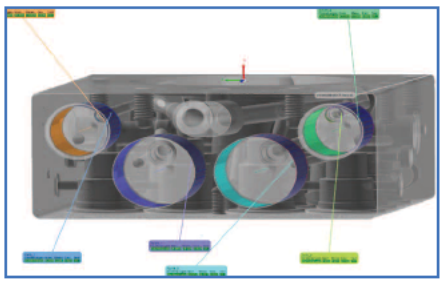


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Beyond high-resolution 3D analysis in R&D and failure analysis labs, the phoenix v|tome|x m allows even 3D production control due to its powerful 300 kV tube and high dynamic detector technology for fast CT acquisition, fast velo|CT volume reconstruction and its high automation grade. Applications are, e.g., in light metal casting, electronics assembly, plastics molding as well as in turbine blade inspection:

- Internal defect analysis / 3D quantitative porosity analysis
- Assembly control
- Materials structure analysis

Reproducible precision 3D metrology with CT

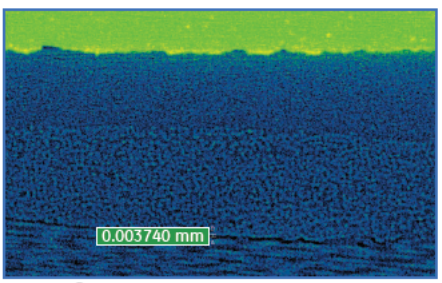


3D metrology of internal features of a valve block made of high grade aircraft aluminum

Especially if complex parts with hidden or difficult accessible surfaces have to be measured, 3D CT offers big advantages in comparison with conventional tactile or optical coordinate measuring machines (CMMs) e.g. for work piece qualification and fast first article inspection. Optimized for long term stability and equipped with its specific 3D metrology package and advanced scatter|correct technology, the phoenix v|tome|x m includes all essential features for CT with extremely high accuracy and reproducibility:

- Accuracy specification of 4+L/100 µm referring to VDI 2630 guideline*
- Nominal-actual CAD comparison
- Dimensional measurements / wall thickness analysis
- Reverse engineering / tool compensation

Explore the 3rd dimension of science



nanoCT® of an aluminium plate (green) welded with carbon fibers in polyamide matrix

With it's high resolution 180 kV nanoCT® option, the new phoenix v|tome|x m opens a non destructive third dimension for scientific research down to the submicron scale - with no required preparation, slicing, coating or vacuum treatment. Analyze biomedical, materials science, composite, electronics or geological samples with down to < 1 micron voxel size.

Compact CT system with unique dual|tube combination

phoenix datos|x CT software

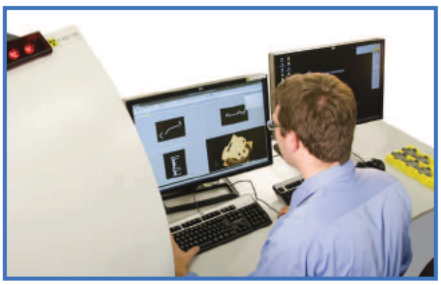
Fully automated data acquisition and volume processing

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Precise, reliable and fast CT results

By using phoenix datos|x CT software, 3D metrology and failure analysis with phoenix|x-ray CT systems becomes as fast and easy as never before.

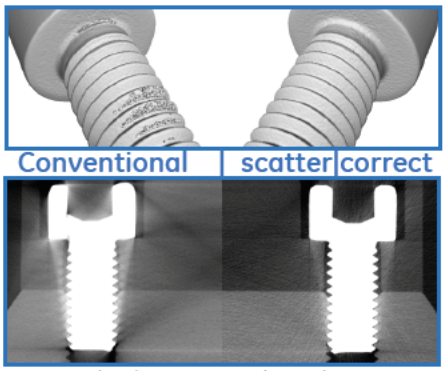
- click & measure|CT: Fully automated data acquisition and volume processing – insert sample, start CT scan, check results
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- Wide spectrum of modules for ease of use and accurate CT results



Easy and user friendly CT operation and evaluation.

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GE's breakthrough scatter|correct technology innovation is exclusively available in industrial microCT for the v|tome|x m system. This technological advancement automatically removes scatter artifacts from the CT volume, allowing users to gain significant improved CT results compared to conventional cone beam microCT.



Compared with conventional cone beam CT, scatter|correct significantly improves the result quality of CT

phoenix v|tome|x m - Your Advantages

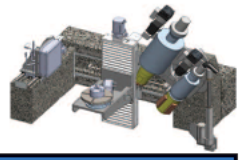
- **Reduced CT artifacts by up to 300 kV X-ray radiation and advanced, high quality scatter|correct option**
- **High precision 3D metrology referring to VDI standard 2630 and non destructive testing tasks performed with minimal operator training**
- **Increased 3D inspection throughput due to high power X-ray tube, efficient, fast detector technology and a high grade of automation**
- **Very high image quality due to unique GE DXR detector array with an extremely high dynamic range**
- **All major hardware and CT software components of the system are proprietary GE technology optimally compatible with one another**
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- **Stability optimized CT acquisition conditions due to temperature stabilized X-ray tube, digital detector array and cabinet**



The unique 300 kV microfocus X-ray tube allows 3D scans even of large or high absorbing work pieces.

CT - measure and control with insight

Technical Specifications & Configurations



	phoenix v|tome|x s	phoenix v|tome|x m**
X-ray tube type	Open directional high-power microfocus X-ray tube, closed cooling water circuit. Optional additional (open) transmission high power nanofocus X-ray tube	
Max. voltage / power	240 kV / 320 W	300 kV / 500 W. Alternatively available with 240 kV / 320 W microfocus X-ray tube
	Optional additional 180 kV / 15 W in dual|tube configuration. Easy tube exchange just by a push of a button	
Geometrical magnification (3D)	1.46 x to 100 x; up to 200 x with nanofocus tube	1.3 x to 100 x at 800 mm FDD (min. sample Ø 2 mm), up to 200 x with nanofocus tube
Detail detectability	Down to < 1 micron (microfocus tube); optional down to < 0.5 micron (nanofocus tube)	
Min. voxel size	Down to 2 microns (microfocus tube)	Down to 1 micron (microfocus tube)
	Optional down to <1 micron (nanofocus tube)	
Measurement accuracy		4+L/100 µm referring to VDI 2630-1.3 guideline* /**
Detector type (all according US ASTM E2597-07 standard)	Temperature stabilized digital GE DXR detector array, 200 µm pixel size, 1,000 x 1,000 pixels, 200 x 200 mm, extremely high dynamic range > 10000:1, 2x detector enlargement	Temperature stabilized digital GE DXR detector array, 200 µm pixel size, 2000 x 2000 pixels, 400 x 400 mm, extremely high dynamic range > 10000:1
	Optional 400 x 400 mm large 4 MPixel DXR detector (without detector enlargement)	
Manipulation	6-axes metal precision manipulator	Granite based precision 5-axes manipulator (6-axes with detector shift)
Focus-detector-distance	800 mm	800 mm fixed
Max. sample diameter x height	max. 3D scanning size up to 260 mm x 420 mm	360 mm x 600 mm; up to 500 x 600 mm with limited travel range, max. 3D scanning size up to 290 mm x 400 mm
Max. sample weight	max. up to 10 kg (220 lbs.)	High accuracy CT up to 20 kg (44 lbs.); max. up to 50 kg (110 lbs.)
Focus object distance (microfocus tube)	7 mm to 545 mm	8 mm to 600 mm at FDD 800 (min. sample Ø 2 mm)
System dimensions W x H x D	2,170 mm x 1,690 mm x 1,500 mm (85.4" x 66.5" 59")	2,620 mm x 2,060 mm x 2,980 mm (103" x 81" x 117.3) D 1,570 mm (62") without user panel and generators
System weight (without ext. components)	Appr. 2,900 kg /6,400 lbs.	Appr. 7,960 kg /17,550 lbs. (300 kV configuration) Appr. 6,410 kg /14,150 lbs. (240 kV configuration)
Temperature stabilization	Active X-ray tube cooling | temperature stabilized detector	Active X-ray tube cooling | temperature controlled cabinet | temperature stabilized detector
Optional scatter|correct hard-/software bundle (also uprade option)		CT quality like 2D fan beam CT with minimized scatter radiation artifacts. Max. scan diameter: 260 mm, geom. magnification 1,51x - 100x
Opt. 2D inspection bundle	Tilt and rotation axes for tilted 2D inspection of samples up to 10 kg (22 lbs.) | 2D inspection software	
Opt. 3D metrology bundle** (also uprade option)	High accuracy direct measuring system | 2 calibration objects | phoenix datos|x CT software package "metrology"	
Opt. nanoCT® bundle	180 kV / 15 W high power nanofocus tube | Precision rotation unit with air bearings | diamond|window	
Opt. click&measure|CT	Optional fully automated CT process chain	included
Software	phoenix datos|x 3D computed tomography acquisition and reconstruction software. Different 3D evaluation software packages for 3D metrology, failure or structure analysis on request	
Radiation protection	The radiation safety cabinet is a full protective installation without type approval according to the German RöV. It complies with French NFC 74 100 and the US Performance Standard 21 CFR Subchapter J. For operation, other official licenses may be necessary.	

* Measured as deviation of sphere distance in tomographic static mode SD(TS), method details referring to VDI 2630-1.3 guideline on request, valid only for phoenix v|tome|x m metrology edition

** phoenix v|tome|x m metrology|edition only available in specific countries at present, more information on request

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2016 BEST PRACTICES AWARD
GLOBAL INDUSTRIAL CT SYSTEMS COMPANY OF THE YEAR AWARD

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GEIT-31319EN 03/16

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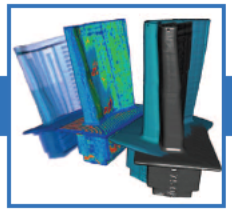
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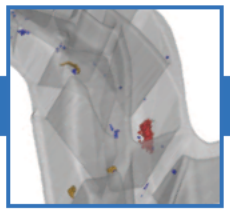
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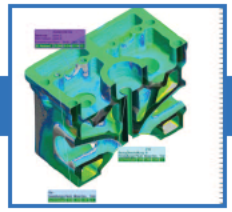
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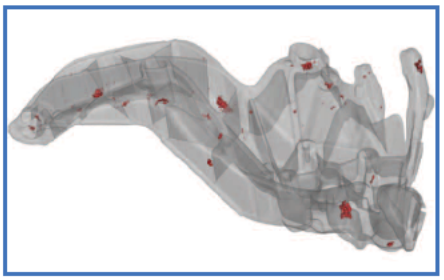


phoenix v|tome|x m

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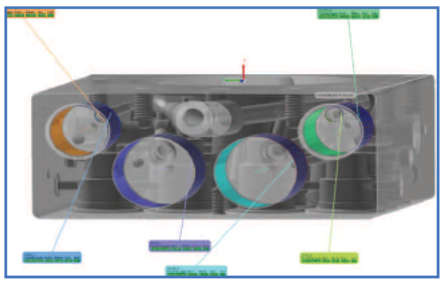


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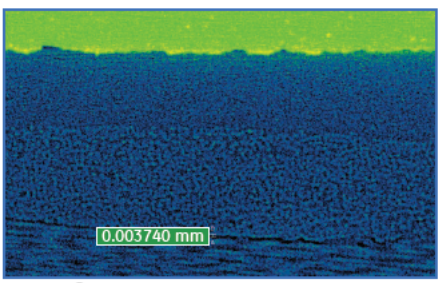


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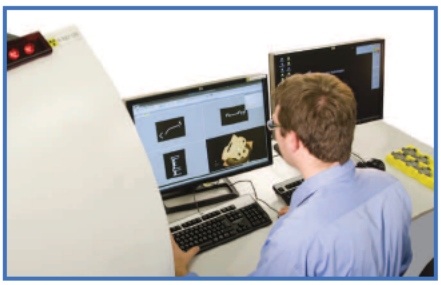
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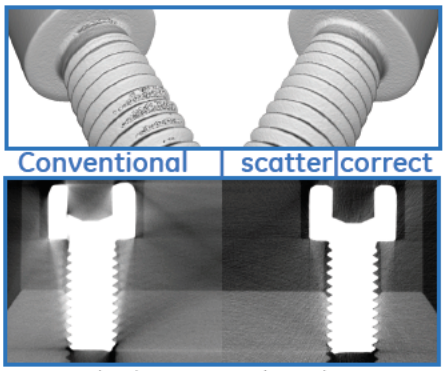
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phoenix v|tome|x m - Your Advantages

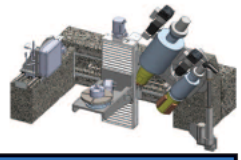
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Technical Specifications & Configurations



	phoenix v|tome|x s	phoenix v|tome|x m**
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Max. voltage / power	240 kV / 320 W	300 kV / 500 W. Alternatively available with 240 kV / 320 W microfocus X-ray tube
	Optional additional 180 kV / 15 W in dual|tube configuration. Easy tube exchange just by a push of a button	
Geometrical magnification (3D)	1.46 x to 100 x; up to 200 x with nanofocus tube	1.3 x to 100 x at 800 mm FDD (min. sample Ø 2 mm), up to 200 x with nanofocus tube
Detail detectability	Down to < 1 micron (microfocus tube); optional down to < 0.5 micron (nanofocus tube)	
Min. voxel size	Down to 2 microns (microfocus tube)	Down to 1 micron (microfocus tube)
	Optional down to <1 micron (nanofocus tube)	
Measurement accuracy		4+L/100 µm referring to VDI 2630-1.3 guideline* /**
Detector type (all according US ASTM E2597-07 standard)	Temperature stabilized digital GE DXR detector array, 200 µm pixel size, 1,000 x 1,000 pixels, 200 x 200 mm, extremely high dynamic range > 10000:1, 2x detector enlargement	Temperature stabilized digital GE DXR detector array, 200 µm pixel size, 2000 x 2000 pixels, 400 x 400 mm, extremely high dynamic range > 10000:1
	Optional 400 x 400 mm large 4 MPixel DXR detector (without detector enlargement)	
Manipulation	6-axes metal precision manipulator	Granite based precision 5-axes manipulator (6-axes with detector shift)
Focus-detector-distance	800 mm	800 mm fixed
Max. sample diameter x height	max. 3D scanning size up to 260 mm x 420 mm	360 mm x 600 mm; up to 500 x 600 mm with limited travel range, max. 3D scanning size up to 290 mm x 400 mm
Max. sample weight	max. up to 10 kg (220 lbs.)	High accuracy CT up to 20 kg (44 lbs.); max. up to 50 kg (110 lbs.)
Focus object distance (microfocus tube)	7 mm to 545 mm	8 mm to 600 mm at FDD 800 (min. sample Ø 2 mm)
System dimensions W x H x D	2,170 mm x 1,690 mm x 1,500 mm (85.4" x 66.5" 59")	2,620 mm x 2,060 mm x 2,980 mm (103" x 81" x 117.3) D 1,570 mm (62") without user panel and generators
System weight (without ext. components)	Appr. 2,900 kg /6,400 lbs.	Appr. 7,960 kg /17,550 lbs. (300 kV configuration) Appr. 6,410 kg /14,150 lbs. (240 kV configuration)
Temperature stabilization	Active X-ray tube cooling | temperature stabilized detector	Active X-ray tube cooling | temperature controlled cabinet | temperature stabilized detector
Optional scatter|correct hard-/software bundle (also uprade option)		CT quality like 2D fan beam CT with minimized scatter radiation artifacts. Max. scan diameter: 260 mm, geom. magnification 1,51x - 100x
Opt. 2D inspection bundle	Tilt and rotation axes for tilted 2D inspection of samples up to 10 kg (22 lbs.) | 2D inspection software	
Opt. 3D metrology bundle** (also uprade option)	High accuracy direct measuring system | 2 calibration objects | phoenix datos|x CT software package "metrology"	
Opt. nanoCT® bundle	180 kV / 15 W high power nanofocus tube | Precision rotation unit with air bearings | diamond|window	
Opt. click&measure|CT	Optional fully automated CT process chain	included
Software	phoenix datos|x 3D computed tomography acquisition and reconstruction software. Different 3D evaluation software packages for 3D metrology, failure or structure analysis on request	
Radiation protection	The radiation safety cabinet is a full protective installation without type approval according to the German RöV. It complies with French NFC 74 100 and the US Performance Standard 21 CFR Subchapter J. For operation, other official licenses may be necessary.	

* Measured as deviation of sphere distance in tomographic static mode SD(TS), method details referring to VDI 2630-1.3 guideline on request, valid only for phoenix v|tome|x m metrology edition

** phoenix v|tome|x m metrology|edition only available in specific countries at present, more information on request

FROST & SULLIVAN
2016 BEST PRACTICES AWARD
GLOBAL INDUSTRIAL CT SYSTEMS COMPANY OF THE YEAR AWARD

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GEIT-31319EN 03/16

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STATE OF CONNECTICUT

Innovation Technology Center
(ITC)

CONNECTICUT CENTER FOR ADVANCED TECHNOLOGY, INC.

Proposal for Program Funding & Administration

February 2, 2017

Introduction and Foreword:

The Connecticut Center for Advanced Technology, Inc. (CCAT) respectfully submits this Economic Development Grant Proposal which seeks support for the continuation of the OEA RADE equipment currently in the Innovation Technology Center (ITC). For the period beginning immediately after the expiration of the OEA RADE program, CCAT proposes to use the acquired equipment as part of our mission to serve manufacturers with a special focus on Pratt & Whitney's supply chain for the F-135 engine.

About CCAT:

CCAT is a non-stock, tax-exempt corporation incorporated on May 3, 2004, and is funded under federal and state sponsored grants. CCAT's mission is to address 21st century economic challenges by creating partnerships which collaboratively provide services and resources to industry, academia, government and non-profit organizations that help them implement innovative solutions, increase efficiencies and improve workforce development. To be acknowledged by our clients as the "go to" resource for improving America's competitiveness and as the best practices partner for organizations and businesses with a technology focus. We will deliver value-added programs efficiently and effectively, with a bold entrepreneurial spirit, and attract the best and brightest people to our collaborative culture and landmark facilities.

Program Background and Summary:

The ITC was created as part of the OEA RADE contract with the federal government. Its purpose is to introduce new manufacturing technology to manufacturers with a particular focus on Pratt & Whitney's F-135 supply chain in preparation for future production. This Center is located at CCAT's Advanced Manufacturing Center and, as of the writing of this proposal, housed a GOM Atos Blue Light scanner purchased under the OEA RADE program as cost share. A second piece of equipment is contemplated (CT X-ray Scanning) but has not been fully defined yet.

CCAT proposes any equipment bought under the OEA RADE program become part of CCAT's AMC by means of a no-cost transfer. This equipment will continue to be used to demonstrate advanced technologies to manufacturers with a particular focus on the F-135 supply base for the same purpose for which it was originally intended. The equipment will become part of a pool of advance technology used by CCAT. CCAT will fund labor and maintenance expense using current and future federal, state and industry funding as applicable and will not require any new funding from the DECD.

Administrative Qualifications & Justification

CCAT has been involved with manufacturing technology since the company's inception in 2004. Our Advanced Manufacturing Center (AMC) serves as a national resource for applied manufacturing technology and boasts some of the most modern manufacturing equipment currently available in the marketplace. With the rapidly expanding interest in additive manufacturing, CCAT has also added both metal and plastic 3D printing capability to its inventory of advanced manufacturing equipment. CCAT recently installed a Hybrid DMG machine and is in the process of installing a new CNC Portal Milling Machine from Zimmermann for composites. The latest High Rate Additive Manufacturing (HRAM) equipment is expected to be installed later this year.

Through site visits, surveys, and research CCAT continually seeks to understand the needs of small and medium-sized manufacturers (SMMs). CCAT's history of conducting technology workshops, providing manufacturing training and productivity assessments to small and medium sized manufacturers makes it uniquely qualified to manage the additional equipment from the OEA RADE program. Included among our staff are degreed engineers and machinists with decades of combined manufacturing experience. Many individuals on our staff have also worked in manufacturing environments and understand the many unique challenges faced by manufacturers.

CCAT believes our AMC would be the best, most cost effective use of the OEA RADE equipment. CCAT has the right facility, staff, and programs to continue to effectively use this equipment in the manner it was intended. Our staff has been fully trained to use this equipment and has experience on projects with manufacturers using it. DECD would incur significant cost to rig out and move this equipment to any other location as well as potentially damaging it during a move.

The GOM Atos has already proven valuable to the manufacturing supply chain as we have received projects/inquirers from; EDAC, Flanagan, GKN, Hubbell, NEAP Phoenix, Satellite Tool, Alpha Q, Polamer, Pratt & Whitney (P&W) and Vivax Medical companies. We have also had interest from the Air Force Research Laboratory (AFRL) for measurement of artifacts to prove out the technology.

Program Summary & Procedures

1. **Overall Objective**

   CCAT's primary objective will be to make the OEA RADE equipment available to the manufacturing supply chain with a special emphasis on P&W's F-135 suppliers. CCAT will use funding from the various federal and state programs to fund this effort as well as appropriate cost share from manufacturers. We will follow whichever procedures are required by the funding source.

   CCAT will keep the equipment in good working order for the extent of its useful life, estimated to be approximately seven years. This equipment will become part of CCAT's fixed assets which are audited annually by an independent audit firm, a copy of which is supplied to the State of Connecticut each year.

2. **Management**

   The management of this equipment will be part of CCAT's AMC Directors' duties and responsibilities. He/she will be responsible for maintaining the equipment and for carrying out the objective of making it available to manufacturers and the F-135 supply chain.

3. **Reporting**

   At DECD's request, CCAT will provide a yearly summary of projects which used the OEA RADE equipment for the duration of its useful life. This summary would include:

   a.) Project description
   b.) Company
   c.) Funding source
   d.) Impact/outcome

4. **Scope of Services**

   Not applicable

5. **Budget Narrative**

   No further funds are requested after the completion of the OEA RADE program.

6. **Payment Schedule**

   Not applicable

NORTH STAR IMAGING
AN ITW COMPANY

X5000 225kV Computed Tomography System



PREPARED FOR

Wayne Sumple
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
United States

SUBMITTED BY:
Jason Dimon
North Star Imaging, Inc.
763-463-5650
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DATE OF QUOTE: 01/19/2017

QUOTE NUMBER: JD004533 v1

QUOTE VALID FOR: 30 days

CONFIDENTIAL: This document is intended to be confidential between the buyer and North Star Imaging, Inc. This document is not to be shared with other parties without the consent of North Star Imaging, Inc.

COMPANY PROFILE

North Star Imaging (NSI) manufactures, sells and services state-of-the-art X-ray Imaging systems and CT equipment for industrial use. Our company also designs and develops the software applications used in our systems. NSI provides system solutions from low production or R&D, to high resolution/high production/high energy. Our standard range of products is extremely flexible to meet varied customer requirements.





NSI began in the field of industrial X-ray Imaging in 1986 in Minnesota. The Company built its first Digital Radiography system in 1991 and first Computed Tomography system in 2002. From 2006, NSI widened its services and added an Inspection Services Group (ISG) offering need based consulting for anyone needing X-ray and/or computed tomography scanning. Aside from the ISG services, the company also has a Technical Service & Support team that is on call 24/7 to address immediate global customer service needs.

The corporate office is located in the city of Rogers, just outside Minneapolis, Minnesota. In 2010, the company was acquired by ITW which is a global company with 51,000 employees across 56 countries. Since then NSI has opened offices in Paris, France, Irvine, CA, High Wycombe, UK, and Suzhou, China. Worldwide NSI has approximately 100 skilled employees including application specialists, mechanical engineers, software engineers, programmers, level 3 instructors and others.

The global demand for cutting edge X-ray and CT equipment that provides advanced capabilities in an easy and intuitive user interface is what constantly pushes NSI to raise the bar with new and innovative products. The company has the widest product portfolio in the industry which keeps NSI way ahead of its competition. NSI offers seven (7) standard X-ray and CT/micro CT systems including the newly launched CXMM 50, an X-ray system designed specifically for 3D Metrology.

NSI is an ISO 9001:2008 certified company.

**Note: The following products or components are proposed as minimum requirements. Products or components exceeding those specified below may be substituted at NSI's discretion.*

System Description and Components

X5000 Industrial 2D Digital X-ray and 3D Computed Tomography System

NSI X-View Digital X-ray and Cone Beam micro CT System

The proposed system is a turnkey X-ray Inspection and Computed Tomography System designed specifically for industrial and research applications. This system utilizes an NSI radiation shielded enclosure and NSI X5000 Seven-axis component manipulator, an NSI X-View *efX-DR* Image processing Workstation with High Resolution flat panel Detector with microfocus X-ray system. This system is state-of-the-art in high-resolution digital X-ray and Computed Tomography imaging technology. **The system is manufactured in the USA.**

System Capabilities

- Advanced 2D X-ray inspection
- 2D CT Slice reconstruction
- CT volume reconstruction for 3D inspection
- 3D internal and external surface scanning
- Measurement and Analysis tools

X5000 Radiation Enclosure 225kV

- Radiation shielding to energies of 225kV constant potential.
- Approximate dimensions: 80" deep, 91" tall, 107" wide (2031mm deep, 2320mm tall, 2724mm wide).
- Steel/lead/steel construction.
- Cable access port with cover.
- Large motorized sliding access door with safety light curtains.
- Large lead glass viewing window
- Primary and secondary x-ray safety interlocks.
- Interior lighting.
- X-ray on warning light.
- Designed to meet all state and federal X-ray safety regulations.

X5000 Seven Axis Manipulator

Movement of the inspection object is limited to x, z, tilt and rotation, along with detector and tube vertical movement.

Some of the other features of the X5000:

- All drives are motorized with variable speed joystick operation
- Tethered desktop control console
- Detector Manipulator:
  - Focal Distance : 0" to 48" (0cm to 122cm)
  - Detector and Tube Vertical Axis - 48" (122cm)
- Part Manipulator:
  - X Axis / front to back translation: 33" (84cm)
  - Z Axis / focal distance tube to detector translation: 48" (122cm)
  - Tilt: +20 /-20 Degrees,
  - CT precision nickel plated 9" rotational stage - 360 Degrees Continuous. Resolution 0.001 degree
- 250lb (113kg) static capacity (not including tilt)
- Integrated electronics
- Aluminum tool plate construction - black anodized
- Precision linear bearing rail

**Exact measurements may vary slightly at time or order based on x-ray source, detector, optional component selection, or revision.*

efX Motion Control Module

The efX Motion Control Module provides an operator friendly teach and learn interface to create complex motion control programs easily and quickly.

X-ray Tube

Microfocus 225kV Directional

- Tube Voltage ...25 - 225kV
- mA Range ...0-3 mA
- Power ...320 W max
- Focal Spot Size < 6 microns
- Detail Recognition ...< 2 microns
- 10 Meter High Tension Cable
- Closed Loop Water Cooler

X-ray Control Unit

- Workstation with Windows operating system
- Automatic tube warm-up ... High voltage, filament current
- Automatic focusing, electron beam alignment and target loading control
- Spare parts and service kit

X-ray Detector

Varian Paxscan 2520DX

- 8” x 10” (203mm x 254mm) image area
- Premium CT Grade (best quality)
- Cesium Scintillator (best contrast)
- 127 micron pixel pitch. 1536x1920 pixels (approx. 3 Megapixels)
- 16 bit resolution
- 30 fps (2x2 pixel binning) image acquisition; 12.5 fps at full resolution
- Tungsten shielded to 225kV (increased lifetime)

Software and Workstations

efX-DR Workstation

- Windows® 10 Operating System
- Six-Core Intel® Xeon® Processor
- 8 GB RAM
- 3TB of Data Storage in RAID 0 Configuration
- DVD+/-RW Drive
- 10/100/1000 Network Interface
- NVidia High Performance Display Adaptor
- 30” (762mm) 4 Mega Pixel Color Display
- Wireless Keyboard and Mouse

efX-DR Software

X-View *efX-DR* is a high performance image analysis system with a comprehensive set of image analysis tools.

- *Windows*® based (Compatible with Windows 7 or higher)
- Non-proprietary image storage format.
- Multiple Windows interface
- High performance image processing and measurement functions utilizing GPU technology
- Automatic parallelization for systems with multiple CPU’s and GPU’s
- Live Imaging up to 30 frames per second
- Live Averaging, Live Histogram, Live line Profile, Live Rotation between portrait and landscape modes
- Live Measurements with 1 pixel resolution
- Live image gain/offset calibration and defective pixel correction
- Automatic creation of Technique sheet for operator record
- Capture video into AVI files.
- Supports digital flat panel detectors, LDA’s and digital/analog cameras at 8, 10, 12 and 16 bits.
- Read and store images in TIFF 32 bit / 16 bit / 8 bit, BMP, JPEG, RAW
- Seamless integration with *efX-CT* software

efX-DR CT Acquisition Module

The CT acquisition module provides automated CT acquisition capabilities for *efX-DR*.

- Capable of CT acquisition up to 10,000 angle steps.
- Technique sheet creator for operator record.
- Monitors x-ray performance and will pause the CT scan if x-ray interruption is detected.

Fast CT Acquisition Module

Module included in the *efX-DR* acquisition software. It allows continuous fast CT acquisition of projections for fast CT scans from 5 seconds to minutes for thousands of projections.

efX-CT FULL Computed Tomography Software

efX-CT is a powerful CT software that includes CT calibration, Cone-Beam reconstruction, 3D real time visualization and analysis tools in the same interface. efX-CT is Windows based and compatible with Windows 7 or higher.

- **EasyCT** - A 5-steps user-friendly process from the creation of the project to the final results. EasyCT guides the user through the calibration and reconstruction process thanks to an interactive interface and automatic processes.
- **AdvancedCT** - The user - at anytime - can switch to the advanced mode that gives access to the full set parameters for CT reconstruction.
- **Automatic Calibration** - This tool has been developed to optimize cone-beam CT reconstruction process and to simplify CT and µCT equipment.
- **Cone Beam Reconstruction** - Fastest reconstruction times on the market. Reconstruction performed on GPU hardware.
- **3D Volume Rendering** - Real time volume rendering. Export slices at any angle, create movie animations, performed localized reconstruction and more.
- **3D Surface Module** - Surface extraction to CAD compatible format: Export to STL (Stereolithography), cloud points, OBJ, DXF, WRL, PLY. Visualization in wireframe mode. Map textures with reflection.
- **efX-CT LITE**: The "Lite" version of efX-CT is especially developed for CT service customers. This software gives the capability to open any NSI CT volume, display and manipulate in 3D, adjust the grey level with the interactive 3D histogram, make screenshots and videos ...etc. This is a 30 days limited version

X-View efX-CT Basic Reconstruction Workstation

- Windows® 10 Operating System
- Six-Core Intel® Xeon® Processor
- 8GB RAM
- 4TB of Data Storage with RAID 5 Capabilities
- NVidia High Performance Display Adaptor for Display and Reconstruction
    - 4GB GPU Memory
    - 2048 Processing Cores
- DVD+/-RW Drive
- 10/100/1000 Network Interface
- 30" (762mm) 4 Mega Pixel Color Display
- Wireless Keyboard and Mouse

efX Detector Qualification Software License

The efX Process Control Software is an interface that allows the user to routinely monitor digital detectors. Specifically, this module allows for the qualification of pixel mapping and the verification of the detector quality, spatial resolution, and contrast sensitivity. Also included in this module is a SMPTE test pattern used for checking the quality of the display monitor.

To include the following:

- Pixel Mapping Qualification
- Detector Quality Check
- Spatial Resolution
- Contrast Sensitivity Check
- SMPTE Display Test Pattern

Ergo Desk and NSI Chair

Industrial ergonomic control console. The ergo console is the ultimate in workstation adjustability and efficiency. Depress the hand release paddle for immediate, yet controlled, surface height positioning from 27.5" to 42.5" (70cm to 108cm) - without electric power. Innovative monitor arm allows easy, independent focal and height adjustment of an entire bank of monitors - without electrical power. The spring counterbalance design provides ease of adjustment with long-term reliability. Multi-monitor support with chair.

Additional Components

Copper Filter Kit

Set of copper filters for use with microfocus tubes

- Selection of 0.005", 0.010", 0.020", 0.040", 0.060", 0.080" thick filters

Installation and Training

Installation

NSI will perform installation with factory trained NSI personnel. Buyer is responsible for movement of equipment from the shipping area to the installation site, placement of machine at final installation site, and providing for refuse disposal. Buyer is also responsible for power requirements specified by NSI.

Onsite DR / CT System Training (4 days)

NSI will provide on-site 4-days DR/CT system operation training.

Digital Radiography & Intro to CT Training (40 hour course) (One Seat)

NSI will provide two (2) seats to the 40 hour ASTM/ASNT Certified DR/CT training course, held in Rogers, MN.

This course follows the recommended curriculum of FWG-IDR, MAI, ASTM and ASME in a format for compliance with NAS 410 and SNT-TC-1A type Qualification/Certification programs.

For more info visit: http://4nsi.com/training

NSI Advanced CT Training (40 Hour course) (One Seat)

NSI will provide one (1) seat to the 40 Hour Advanced CT Class held in Rogers, MN

This unique course includes CT Technique Development training, CT Reconstruction and Post Processing training, hands on in the CT lab with access to a wide variety of CT and microCT systems.

For more info visit: http://4nsi.com/training

Maintenance

Warranty / 1st Year (1 Visit) - Open Tube

1st Year efX-DR and efX-CT Software Updates

Shipping

Shipping: Included

X5000 Crating for Shipment

FINANCIAL INVESTMENT

QTY 1	**X5000 225kV Computed Tomography System**	**$449,867.29**
	X5000 Industrial 2D Digital X-ray and 3D Computed Tomography System	
	X5000 Radiation Enclosure 225kV	
	X5000 Seven Axis Manipulator	
	efX Motion Control Module	
	Microfocus 225kV Directional	
	Varian Paxscan 2520DX	
	efX-DR Workstation	
	efX-DR Software	
	efX-DR CT Acquisition Module	
	Fast CT Acquisition Module	
	efX-CT FULL Computed Tomography Software	
	X-View efX-CT Basic Reconstruction Workstation	
	efX Detector Qualification Software License	
	Ergo Desk and NSI Chair	
	Copper Filter Kit	
	Installation	
	Onsite DR / CT System Training (4 days)	
	Digital Radiography & Intro to CT Training (40 hour course) (One Seat)	
	NSI Advanced CT Training (40 Hour course) (One Seat)	
	Warranty / 1st Year (1 Visit) - Open Tube	
	1st Year efX-DR and efX-CT Software Updates	
	Shipping: Included	
	X5000 Crating for Shipment	

Options

Second Year PM (2 Visits) - Open Tube	$10,950.00
Second Year efX-DR and efX-CT Software Updates	$8,500.00

Payment Terms:

40% due net 10 days upon acceptance of PO
50% due net 10 days upon shipment or anticipated ship date if delayed by customer.
10% due net 30 days upon delivery to customer's facility.
Quoted in US Dollars. Taxes and Duties are not included.

Delivery Information:

Delivery: On or Before March 31st, 2017*
Note: Delivery schedule starts with receipt of down payment
Incoterms 2014, FOB Origin
Shipping: Included
Rigging: Client Responsible for unloading the system from semi truck bed and placing system into building in final resting place for use.

DESCRIPTION OF OPTIONS

Second Year PM (2 Visits) - Open Tube

Second Year efX-DR and efX-CT Software Updates

NORTH STAR IMAGING, INC.

An ITW Company

1. DEFINITITIONS

1.1 The "COMPANY" shall mean North Star Imaging, Inc.

1.2 The "CUSTOMER" shall mean the person, firm, company or other organization entering into the CONTRACT as defined in subsection 1.8 below.

1.3 The "GOODS" shall mean all items manufactured or supplied by the COMPANY.

1.4 The "INSPECTION SERVICES" shall mean all x-ray imaging services performed by COMPANY personnel on CUSTOMER SUPPLIED PARTS.

1.5 The "CUSTOMER SUPPLIED PARTS" shall mean all parts or other items provided by the CUSTOMER to the COMPANY for INSPECTION SERVICES as defined in subsection 8.2 below.

1.6 The "MAINTENANCE SERVICES" shall mean all specific advice and services performed by the COMPANY which are not INSPECTION SERVICES.

1.7 The "SERVICES" shall mean, collectively, all INSPECTION SERVICES and MAINTENANCE SERVICES performed by the COMPANY

1.8 The "CONTRACT" shall mean the agreement arising between the COMPANY and the CUSTOMER following receipt of the CUSTOMER'S order for the GOODS and/or SERVICES comprised in the COMPANY'S quotation or, if no quotation has been given, the agreement arising on dispatch by the COMPANY of a written acceptance of the CUSTOMER'S' order or shipment of the GOODS, which ever first occurs.

2. GENERAL

All CONTRACTS entered into by the COMPANY are subject to and governed solely by these terms and conditions of sale, which may only be varied by the COMPANY in writing. Acceptance of any purchase order by the COMPANY is expressly made conditional on assent by the CUSTOMER to any additional or different terms or conditions set forth herein.

3. PRICES AND QUOTATIONS

3.1 All quotations issued by the COMPANY for the supply of GOODS and SERVICES shall remain open for acceptance for the period stated in the quotation or, if none is stated, for ninety days.

3.2 In all other cases prices for GOODS to be supplied or SERVICES performed by the COMPANY shall be those in effect upon shipment or performance.

3.3 All prices quoted for the supply of GOODS and SERVICES shall be exclusive of sales, use and Retailers' occupation taxes and any other taxes or customs/excise duties and the COMPANY shall be entitled to charge the CUSTOMER (or be reimbursed for) these items at the applicable rate.

3.4 Unless otherwise agreed in writing the company shall charge the customer for packaging, carriage and any insurance requested by the CUSTOMER.

4. PAYMENT

4.1 Unless otherwise agreed in writing (i.e. proposal, quotation), payment of all invoices shall be made to the COMPANY in full in U.S. dollars no later than thirty days from the date of invoice. Down and/or progress payments may be required and payment may be required before progress resumes.

4.2 In the event of delay in payment, the COMPANY reserves the right to:

4.2.1. suspend deliveries and/or cancel any of its outstanding obligations under the CONTRACT; and

4.2.2 levy a service charge to cover administrative and other associated costs in relation to overdue accounts at the rate of the lesser of 2% per month on all unpaid amounts or the maximum percentage permitted by applicable law.

4.3 The CUSTOMER shall have no right to set off any amounts owing to or alleged to be owing to it by the COMPANY against unpaid invoices due to the CUSTOMER.

4.4 The COMPANY shall have the right for reasonable cause to withdraw or refuse credit facilities or to require from the CUSTOMER cash on or before delivery or security for payment and to withhold delivery until such requirement is complied with.

4.5 Any claim or inquiry by the CUSTOMER in respect of the invoiced price of the GOODS or SERVICES must be submitted in writing to the COMPANY within the credit period referred to in subsection 4.1

5. DELIVERY

5.1 Unless otherwise agreed in writing between CUSTOMER and the COMPANY, all GOODS will be shipped Ex-Works (EXW) Rogers, MN USA.

5.2 The CUSTOMER shall ensure that adequate and safe facilities and procedures exist for receipt of the GOODS at its premises at the time of delivery by the COMPANY or its agent or carrier, and warrants to the COMPANY that the site where it intends to use the GOODS is suitable in all respects for their intended use and is licensed in accordance with any relevant local, state and federal regulations.

5.3 All delivery dates are quoted in good faith, but the COMPANY reserves the right to alter them notifying the CUSTOMER as soon as reasonably practicable. THE COMPANY WILL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL OR ECONOMIC LOSS OR DAMAGE DUE TO DELAY IN DELIVERY, HOWEVER CAUSED.

5.4 The CUSTOMER shall not be entitled unreasonably to delay delivery or refuse to accept delivery. However, if in the opinion of the COMPANY, the CUSTOMER:

5.4.1 is not ready to receive the GOODS on the day intended, or

5.4.2 fails to give the COMPANY adequate instructions, or

5.4.3 fails to pick up GOODS intended for pick up, or

5.4.4 fails to comply with the provisions of subsection 6.2 in whole or in part,

then the COMPANY shall be entitled to store, dispose of or otherwise deal with the GOODS in any way it thinks fit without being liable in any way for any resulting loss suffered by the CUSTOMER and to charge for any costs incurred. In addition, the COMPANY shall have the right to cancel the CONTRACT. If the CUSTOMER unreasonably delays delivery or refuses to accept delivery, the COMPANY shall be entitled to the full invoice price for the GOODS plus any costs of disposal, less the amount, if any, received by the COMPANY in disposing of or otherwise dealing with the GOODS.

5.5 The CUSTOMER shall promptly notify the COMPANY in writing in the event those GOODS does not arrive within seven days of their anticipated receipt.

6. ACCEPTANCE

6.1 In cases where the COMPANY is involved in the installation of GOODS, the CUSTOMER shall allow the COMPANY and its representatives proper access to the site during the installation period and following completion of installation, the GOODS shall be accepted by the CUSTOMER when they have been demonstrated to be in proper working order.

6.2 In all other cases, the CUSTOMER shall inspect the GOODS, within seven days of receipt and failure to notify the COMPANY in writing of any defect or other proper objection to the GOODS or their

packaging within such period shall constitute acceptance by the CUSTOMER.

6.3 Acceptance by the CUSTOMER shall be without prejudice to its rights under Section 10.

7. RISK AND TITLE

7.1 Unless otherwise agreed to in writing, Risk of loss in or damage to the GOODS shall pass to the CUSTOMER upon shipment.

7.2 Unless Otherwise agreed to in writing Title to the GOODS shall pass to the customer upon shipment.

7.2.1 The CUSTOMER agrees to allow the COMPANY to ship the GOODS to the destination using COMPANY approved carriers and methods.

7.3 Unless otherwise agreed to in writing, the COMPANY shall bear no risk of damage or loss related to CUSTOMER SUPPLIED PARTS.

7.4 In the event that the CUSTOMER enters into liquidation voluntarily or involuntarily, the COMPANY shall be entitled:

7.4.1 to immediately terminate the CONTRACT without notice and/or

7.4.2 to enter the premises of the CUSTOMER with such transport as may be necessary and repossess any of the GOODS to which it is entitled under subsection 8.3.

7.5 Nothing in this Section shall confer any right upon the CUSTOMER to return the GOODS or to refuse or delay payment for it.

8. SERVICES

8.1 Where the COMPANY is to perform MAINTENANCE SERVICES, the CUSTOMER shall ensure that:

8.1.1 adequate and safe facilities and procedures exist at its premises and that the COMPANY is notified in advance of any relevant regulations or statutory requirements that affects such premises.

8.1.2 where the MAINTENANCE SERVICES are performed outside the United States the COMPANY is notified in advance of any regulations, consents or statutory requirements it has to comply with, and

8.1.3 subject to subsection 8.1.2 it shall comply with all relevant regulations and provide all necessary licenses and certificates.

8.2 Where the COMPANY is to perform INSPECTION SERVICES, the CUSTOMER:

8.2.1 represents and warrants that CUSTOMER has rightful ownership of the CUSTOMER SUPPLIED PARTS.

8.2.2 represents and warrants that no consent is required from any third party prior to performing INSPECTION SERVICES on the CUSTOMER SUPPLIED PARTS.

8.2.3 shall supply the COMPANY, in advance, with copies of any and all relevant regulations or statutory requirements that may affect the handling of the CUSTOMER SUPPLIED PARTS.

8.2.4 agrees that, unless otherwise established in writing, the COMPANY will provide copies of images acquired through INSPECTION SERVICES but that any decision to accept or reject parts based on the scans shall be the sole responsibility of the CUSTOMER.

8.3 The COMPANY shall be entitled to refuse to perform the CONTRACT without liability if the provisions of subsection 8.1 or 8.2 are not strictly complied with by the CUSTOMER.

8.4 Where the COMPANY is to perform those SERVICES listed below; certain additional conditions shall apply to the CONTRACT, copies of which are available on request.

8.4.1 Consultancy and Design

8.4.2 Customs Synthesis and Labeling,

8.4.3 System Installation and/or Modification

9. WARRANTY

9.1 Certain items of GOODS manufactured and/or supplied by the COMPANY benefit from a long-term warranty, details of which will be made available to the CUSTOMER in writing at the time of quotation or prior to conclusion of the CONTRACT.

9.2 The COMPANY warrants that all GOODS will at the time of receipt by the CUSTOMER be free from defects and conform to the relevant technical specification and that all SERVICES will be carried out by the COMPANY with reasonable care and skill but the COMPANY'S sole liability for breach of this warranty shall be at its option to give credit for, replace or repair any GOODS or SERVICES PROVIDED THAT:

9.2.1 the COMPANY is informed in writing within seven days of the failure or defect becoming apparent, and

9.2.2 the failure or defect is shown to the COMPANY'S reasonable satisfaction to be due to its faulty design, workmanship, material or packaging.

9.3 The warranty in subsection 9.2 shall, except in the case of GOODS sold by the COMPANY for use in research (which GOODS are warranted at date of receipt only), extend for a period of 12 months from the date of receipt of the GOODS or completion of the SERVICES, provided that if a shorter warranty period is stated in the product literature, then such shorter period shall govern.

9.4 COMPANY warrants each new COMPANY system against defects in material and workmanship for a period of 12 months from the transfer of title from the COMPANY. If a component fails within the scope of this warranty, after inspection of the product at the factory, COMPANY, at its option, will either repair or replace the defective component. COMPANY acts as an agent, dealer and integrator for a number of components and equipment not of its own manufacture. Original manufacturer's warranties will apply to the end user on these components. During the 12-month warranty period, repair labor will be without charge - provided the repairs meet warranty terms and the work is performed during normal working hours (8 am to 5pm, Monday – Friday), excluding holidays. Standard labor charges apply to repairs performed outside of normal working hours. COMPANY'S sole obligation is to repair or replace equipment found to be defective. This does not extend to consumables or to damage resulting from accident, misuse, neglect, improper maintenance or improper application. Uses of accessories not provided with the equipment or damage caused by improper power or ambient conditions will not be covered. This warranty is void when service personnel not authorized by COMPANY perform installation, service, alterations or repairs on any part of the equipment. This warranty extends only to the first end user and is not transferable. Reconditioned or used equipment is sold "as-is" with no warranty unless otherwise indicated.

10. EXCLUSION and LIMITATIONS of LIABILITY

10.1 THE WARRANTIES OF THE COMPANY IN SECTION 9 ARE EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, GUARANTEES, CONDITIONS, OBLIGATIONS OR LIABILITIES WHICH MAY BE EXPRESSED OR IMPLIED BY THE COMPANY OR ITS REPRESENTATIVES, ALL STATUTORY AND IMPLIED WARRANTIES OR CONDITIONS, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND OTHER THAN TITLE, ARE HEREBY EXPRESSLY NEGATED AND EXCLUDED.

10.2 The COMPANY shall not be bound by any representations or statements on the part of its employees or agents whether oral or in writing except where such representations or statements are expressly made part of the CONTRACT.

10.3 The CUSTOMER shall give the COMPANY prompt written notice of any complaint of breach of warranty. The maximum liability for breech of warranty shall be the invoice price of the PRODUCT or the amount of money paid to the COMPANY for SERVICES, as applicable. Upon the COMPANY'S request, the CUSTOMER shall return the PRODUCT to the COMPANY at the COMPANY'S expense.

10.4 SAVE FOR THE WARRANTIES IN SECTION 9, THE COMPANY SHALL NOT BE LIABLE TO THE CUSTOMER FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL OR ECONOMIC LOSS OR DAMAGE RELATING TO ITS GOODS OR SERVICES EXCEPT IN SO FAR AS SUCH LIABILITY RELATES TO DEATH OR PERSONAL INJURY RESULTING FROM THE COMPANY'S NEGLIGENCE.

10.5 The CUSTOMER shall ensure that the specification of the GOODS ordered is suitable and safe for the intended use or environment of

use except where it makes known details of such use to the COMPANY in writing prior to conclusion of the CONTRACT in such a way as clearly to place reliance on the COMPANY'S special skills.

10.6 The CUSTOMER shall handle the GOODS in a suitable and safe manner and shall comply with any instructions supplied to it by the COMPANY. The CUSTOMER shall also pass on to users (including purchasers and users of other goods and goods into which the GOODS are incorporated) all relevant safety information, and shall use best efforts to cause such users to exercise due care in the handling of the GOODS.

10.7 WHERE THE COMPANY EXPERIENCES TECHNICAL DIFFICULTIES IN THE PRODUCTION OF NON-STANDARD OR CUSTOM-MADE PRODUCTS IT MAY CANCEL THE CONTRACT WITHOUT BEING LIABLE TO THE CUSTOMER IN ANY WAY.

10.8 When the CUSTOMER supplies designs, drawings and specifications to the COMPANY to enable it to manufacture non-standard or customer made GOODS the CUSTOMER warrants that such manufacture will not infringe the intellectual property rights of any third party, and the COMPANY shall not be liable for any loss, damage or defect arising out of or resulting from such designs, drawings or specifications supplied by the CUSTOMER.

10.9 The CUSTOMER expressly acknowledges that the COMPANY is not a certified testing laboratory and that the COMPANY does not guarantee the correctness or completeness of its INSPECTION SERVICES. Accordingly, all risk and liability relating to the CUSTOMER SUPPLIED PARTS (including, but not limited to products liability) shall be retained exclusively by the CUSTOMER.

11. INDEMNITIES

11.1 The CUSTOMER shall indemnify and hold the COMPANY harmless from any actual costs or expenses (including, but not limited to reasonable attorneys fees and amounts paid in settlement of claims) related to any actual or threatened claim, which may be made against the COMPANY:

11.1.1 that the use of the GOODS constitutes a breach of the Occupational Safety and Health Act or related regulations or any other relevant state, federal or international safety legislation and regulations.

11.1.2 that the use of the GOODS or provision of SERVICES infringes the patent, copyright or other intellectual property rights of any third party,

11.1.3 by any third party for liability related to CUSTOMER SUPPLIED PARTS or the COMPANY's provision of INSPECTION SERVICES.

11.1.4 arising out of the representations and warranties made by the CUSTOMER pursuant to this CONTRACT; or

11.1.5 arising out of the failure of the CUSTOMER to observe the terms of the CONTRACT.

11.2 The provisions of subsection 11.1 shall not apply where the claim arises as a direct result of (a) the gross negligence or willful misconduct of the COMPANY or its employees; or (b) the use of the GOODS is in accordance with the COMPANY'S written instructions.

12. STANDING ORDERS

12.1 Acceptance by the COMPANY of each standing and call off order received from the CUSTOMER for the supply and delivery of fixed quantities of GOODS and/or SERVICES at stated intervals or for the supply of fixed quantities of GOODS and/or SERVICES at intervals to be advised by the CUSTOMER shall constitute a single CONTRACT.

12.2 All such orders, once accepted, are subject to cancellation by the COMPANY (without liability on the part of the COMPANY) on giving thirty days prior written notice to the CUSTOMER, provided that the COMPANY may cancel without notice in the event that either:

12.2.1 the provisions of subsection 7.4 apply to the CUSTOMER, or

12.2.2 the CUSTOMER is in breach of subsection 4.1

13.1 The CUSTOMER shall only be entitled to cancel such orders on giving thirty days prior written notice to the COMPANY and after repayment to the COMPANY amount of any discount of special price reduction from which the CUSTOMER has benefited up to the date of cancellation.

13. FORCE MAJEURE

13.1 The COMPANY shall not be liable for any failure to fulfill the CONTRACT or any term or condition of the CONTRACT if fulfillment has been delayed, hindered or prevented by any circumstances beyond its reasonable control, including but not limited to any strike, lock-out or other industrial dispute, Act of God, compliance with requirements of any Government port or international authority, plant breakdown, goods failure and inability to obtain goods, fuel, power, materials or transportation.

13.2 The COMPANY shall promptly notify the CUSTOMER if an event of force majeure arises and during the period in which the COMPANY is prevented from performing the CONTRACT the CUSTOMER shall be entitled after giving the COMPANY written notice of its intention to do so to purchase GOODS elsewhere at its own cost and risk and the COMPANY shall not be obliged to make up deficiencies which arise as a result.

13.3 If an event of force majeure exceeds one month, the COMPANY may cancel the CONTRACT without liability.

14. MISCELLANEOUS

14.1 The failure of the COMPANY to enforce its rights under the CONTRACT at any time for any period of time shall not be construed as a waiver of any such rights.

14.2 The CUSTOMER undertakes not to use any trademarks or trade names applied by the COMPANY to the GOODS nor to do or permit anything whereby the goodwill and reputation of such trademarks or trade names is prejudiced or damaged.

14.3 Each party represents and warrants to the other that it is a "Merchant" as that term is defined in 12-104 of the Uniform Commercial Code.

14.4 Unless otherwise specified in writing in the CONTRACT, all intellectual rights existing or created in GOODS to be supplied or arising in the course of performance of SERVICES to be performed under the CONTRACT shall be the property of the COMPANY.

15. GOODS RETURN

15.1 Certain items of GOODS manufactured and/or supplied by the COMPANY benefit from a one-for-one GOODS return policy, details of which will be made available to the CUSTOMER in writing at the time of quotation or prior to conclusion of the CONTRACT.

15.2 In all other circumstances, return of GOODS supplied by the COMPANY will be subject to the prior written agreement of suitable terms (including recompense) by the COMPANY. Where a CUSTOMER returns GOODS without such prior written agreements such GOODS shall be returned to the CUSTOMER, who shall be charged fully for all costs incurred by the COMPANY.

15.3 In all cases where acceptance of returned GOODS has been agreed by the COMPANY, then the CUSTOMER shall be responsible for all charges incurred in returning such GOODS.

16. CANCELLATION POLICY

16.1 Orders for standard inventory items that are cancelled after acceptance by the COMPANY (or authorized distributor) are subject to a 25% restocking fee. All other items are non-cancellable and are subject to a charge of up to 100% of the original order value.

17. GOVERNING LAW

17.1 The contract shall be governed, interpreted and enforced by the laws of the State of Minnesota, USA without regard to conflict of law principles.

2D Digital X-ray and 3D Computed Tomography

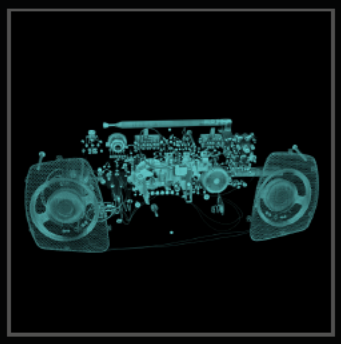


X5000

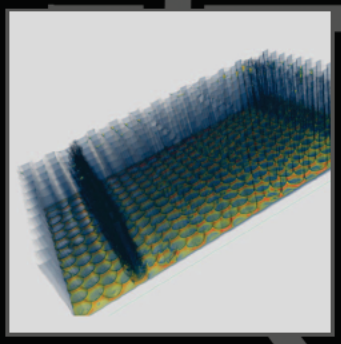
The X5000 is a multi-axis high-resolution digital x-ray system for digital radiography and computed tomography inspection of small to large objects with a large format detector. The 5000 Series has innovative cabinet and manipulator designs for easy part loading of even the largest of objects. The system can accommodate a variety of part shapes, sizes and weights. The steel/lead/steel cabinet has a fit and finish that is unparalleled in the industry and the machine tool technology used in the motion control system ensures a long trouble free life. All systems are manufactured to meet all state and federal radiation safety regulations.



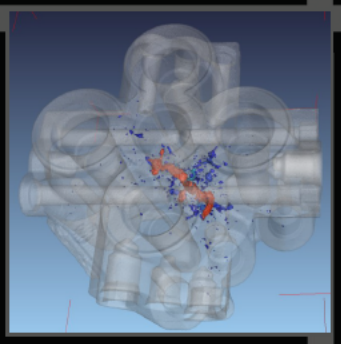
RESEARCH



ELECTRONICS



AEROSPACE



CASTINGS

SPECIFICATIONS

OVERALL

- X-ray Energies from 10kV-600kV
- Geometric Magnification: Greater than 2000x
- Overall Maximum System Resolution: better than 500nm
- Meets ASTM E2597 Standard

CABINET

- External Dimensions: 79" Wide x 108" Deep x 92" Tall (200cm Wide, 274cm Deep, 232cm Tall)
- Cabinet Features: Cable access port with cover, interior lighting, powered sliding access door(s), leaded glass viewing window/ internal camera monitoring system, safety light curtains
- Optional bi-parting doors for overhead part loading
- Steel/lead/steel construction
- Meets or exceeds all federal and state radiation safety regulations
- Touch screen operation
- Includes one ergonomic desk and chair

MANIPULATOR

- Maximum Sample Weight: 250lbs (113kg)
- Scan Travel (customization available): Vertical = 48" (122cm), Horizontal = 33" (84cm), Z axis (source to detector) = 48" (122cm), Tilt = +20º/-15º, Rotation = 360º continuous
- Motorized detector travel for variable focal distance adjustment
- Part Manipulation Control:
  - All drives variable speed joystick controlled
  - Each axis is independently controlled
- Option: Control-X: Programmable CNC controlled automated scanning with automatic image processing and archiving capabilities
- Option: Rotational stage indexes outside of the cabinet for easy part loading/unloading

X-RAY SOURCE

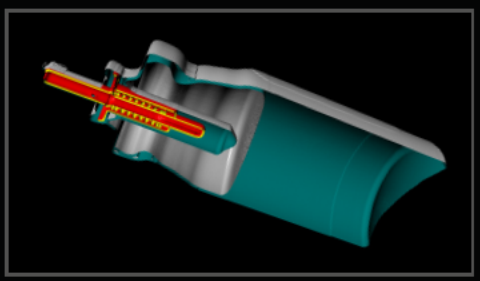
- Voltage Range: 10kV-600kV
- Minimum Focal Spot Size: < 500nm
- X-ray Tube Types: Nano-focus, Micro-focus, Mini-focus, Open or Sealed, Transmission or Directional or Dual Head

X-RAY DETECTOR

- Digital X-ray Detector Types: Flat Panel (DDA), Linear Diode Array (LDA), Image Intensifier
- Grade Options: Standard or CT Premium, 14bit or 16bit
- Detector Size: Up to 16" x 16" (40cm x 40cm)

X-VIEW SOFTWARE

- Comprehensive acquisition, processing and archival program with user-friendly interface
- High performance image processing and measurement functions
- Non-proprietary multiple image format output/input. Diconde compliant
- Automated program functions for fast analysis
- Multiple window interface for display of raw image, processed image, density data, etc.
- Computed Tomography acquisition module
- Optional 3D Computed Tomography calibration, reconstruction and visualization
- Optional 4D Computed Tomography

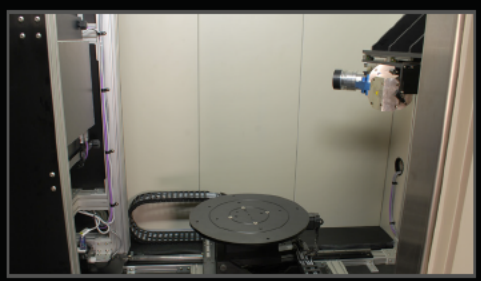


MEDICAL ASSEMBLIES

NORTH STAR IMAGING, INC.

An ITW Company

Corporate Headquarters:
19875 S. Diamond Lk. Rd., Ste. 10
Rogers, MN 55374 • USA
+1 763-463-5650 • SALES@4NSI.COM



INSIDE X5000

VISIT **WWW.4NSI.COM** OR **WWW.XVIEWCT.COM** FOR MORE INFORMATION



CT-ALPHA

This system meets the most stringent demands in CT X-ray. With the CT-ALPHA, we offers the highest possible flexibility for individual customer requirements.

This space-saving system can be equipped with different X-ray powers, from 160kV for nanometer resolution through 225 kV, 320 Watts to the highest power of 320 kV, 800 Watts.

The variable focus-detector distance permits maximum contrast. As an option, the CT-ALPHA offers the Helix-Scan technique for longer objects as well as for the best avoidance of volume CT artefacts for optimum results in dimensional measurement.

Very large geometric magnifications permit real-time reconstructions in the submicron range. The CT-ALPHA system is ideal for non-destructive testing, materials investigations and, in particular, dimensional measurements of internal structures, undercuts and free form surfaces.

Features

- Industrial X-ray Computed Tomography (CT)
- 3D volume CT
- Non-destructive testing (NDT) – 2D and 3D
- Quality control independent of material
- Defect recognition (voids, cracks, ...)
- Contactless metrology
- CT reconstruction in real-time
- Ring artefact suppression
- Helix CT
- Easy operation
- Radiation safety better than 1 µSv/h

	Standard	Advanced	Metrology
X-ray voltage	160 kv	160 kv	225 kv
Detector	50 µm, 1 K²	33 µm, 9 K²	100 µm, 8 K²
Specimen	70 mm, 5 kg	70 mm, 20 kg	300 mm, 50 kg
Axes	5	5	5
Reconst-ruction	1 K³, re-al-time;	1 K³, real-time; 27 K³, off-line	1 K³, real-time; 32 K³, off-line
Smallest 3D detail	1 µm	0.33 µm	0.25 µm
System weight	2100 kg	2300 kg	2600 kg

ProCon X-Ray GmbH
Ludwig-Erhard-Ring 6A
31157 Sarstedt
Germany

Phone +49 (0) 5066 – 98414-0
Fax +49 (0) 5066 – 98414-99
http://www.procon-x-ray.com
info@procon-x-ray.de

PROCON

Wayne Sumple

From: Wayne Sumple
Sent: Wednesday, January 18, 2017 4:07 PM
To: 'Gudat, Joachim'
Subject: RE: your inquiry

Dear Joachim,
Thank you very much for the fast response. My customer has asked me to look for a machine similar to the Nikon 225. Approximately how much would a CT-ALPHA cost if it were configured similar to the following specs? And how fast could I have it delivered?

Feature	Nikon 225
Approx. Part Size / Area Capability	14" x 17"
Part Weight Limit	50 kg
Smallest 3D detail	
X-ray Source	225 kV
X-ray Spot Size	3-225 µm
X-ray Detector	127-200 µm

From: Gudat, Joachim [mailto:Joachim.Gudat@procon-x-ray.de]
Sent: Wednesday, January 18, 2017 2:57 PM
To: Wayne Sumple
Cc: Kirste, Andreas
Subject: your inquiry

Dear Wayne,
I take the opportunity and answer your mail.
First of all, I thank you for your interest in our products.
The price range of regular ALPHA Systems is from € 300 k up to € 600 k.
X-Ray power and Flat Panel size are the main cost drivers. So it would be pretty important to know the material density and dimensions as well as your target applications, scanning speed, resolution, laboratory or production.
The CT-ALPHA concept allows us to tailor a system configuration very close to your needs: cabinet size, dual tube, multiple detectors, fast scan, high precision scan, offset scan, HELIX scan, stitched scan and so on. We compensate artefacts, geometrical inaccuracies, we reconstruct fast and compact. We offer interfaces to various visualization software. We install, train, and provide first level support through internet.
Our regular delivery time is 19 weeks.
Looking forward to our ongoing communication.
Best regards

Joachim Gudat

PXR PROCON X-RAY

ProCon X-Ray GmbH
Ludwig-Erhard-Ring 6A
D-31157 Sarstedt

Tel +49 5066 98414 0
Fax +49 5066 98414 99
www.procon-x-ray.de
Joachim.Gudat@procon-x-ray.de

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Geschäftsführer: Joachim Gudat, ProCon X-Ray GmbH, Ludwig-Erhard-Ring 6A, 31157 Sarstedt
HRB Hildesheim 203861 StNr 30/213/03554 USt-Ident DE156270754

GE

Wayne Sumple

From: Wayne Sumple
Sent: Wednesday, January 18, 2017 11:51 AM
To: 'Clayton, Mark (GE Global Operations)'
Subject: RE: GE Digital Solutions Contact Follow Up

Mark - I have a budget of $450K. Which GE CT X-ray scanner is the best that I can get for that amount of money. Aerospace parts, jet engine parts, additive manufactured parts, not small parts, but not huge either. Metal, plastic and composite material. Laboratory environment. Will be used to demonstrate CT X-ray scanning technology to manufacturing companies in region.

From: Clayton, Mark (GE Global Operations) [mailto:mark.C.clayton@ge.com]
Sent: Wednesday, January 18, 2017 8:35 AM
To: Wayne Sumple
Subject: RE: GE Digital Solutions Contact Follow Up

Thank you. I forwarded your request to our product specialist. They will reach out as soon as they can.

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, January 17, 2017 4:20 PM
To: Clayton, Mark (GE Global Operations) <mark.C.clayton@ge.com>
Subject: EXT: RE: GE Digital Solutions Contact Follow Up

From: Clayton, Mark (GE Global Operations) [mailto:mark.C.clayton@ge.com]
Sent: Tuesday, January 17, 2017 2:48 PM
To: Wayne Sumple
Subject: GE Digital Solutions Contact Follow Up

Wayne,

I have received your request (referenced below) via the GE Digital Solutions website. I was trying to reach you over the phone, but it was unsuccessful. In order to better understand your needs, could you please answer the questions below?

Upon receipt of your response, I will be able to identify the best person to assist you further and connect you with him/her.

- Could you please tell me how would you like to use this product? Inspect aerospace engine parts
- Could you tell where the end user is located? East Hartford, CT
- Do you have any time frame / deadlines for your project / purchase? March 2017
- Could you please provide us your company's full address and contact number (building, street, city, zip code)? It was on the bottom of my email...CCAT, Inc. 409 Silver Lane, East Hartford, CT. 06118. 860-282-4222.

Thank you in advance for your answers.

Request: I run an Advanced Manufacturing Center and am looking to add an X-ray CT machine. Investigating what I can afford. Please provide the following:
Machine footprint

Machine weight
Approx. Part Size / Area Capability
Part Weight Limit
Smallest 3D detail
X-ray Source
X-ray Spot Size
X-ray Detector
Delivery schedule
Price

Mark Clayton
Inside Sales Specialist
GE Global Operations

T +1 513 996 6351
www.ge.com

191 Rosa Parks St. | Cincinnati, OH 45202

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NSI

Wayne Sumple

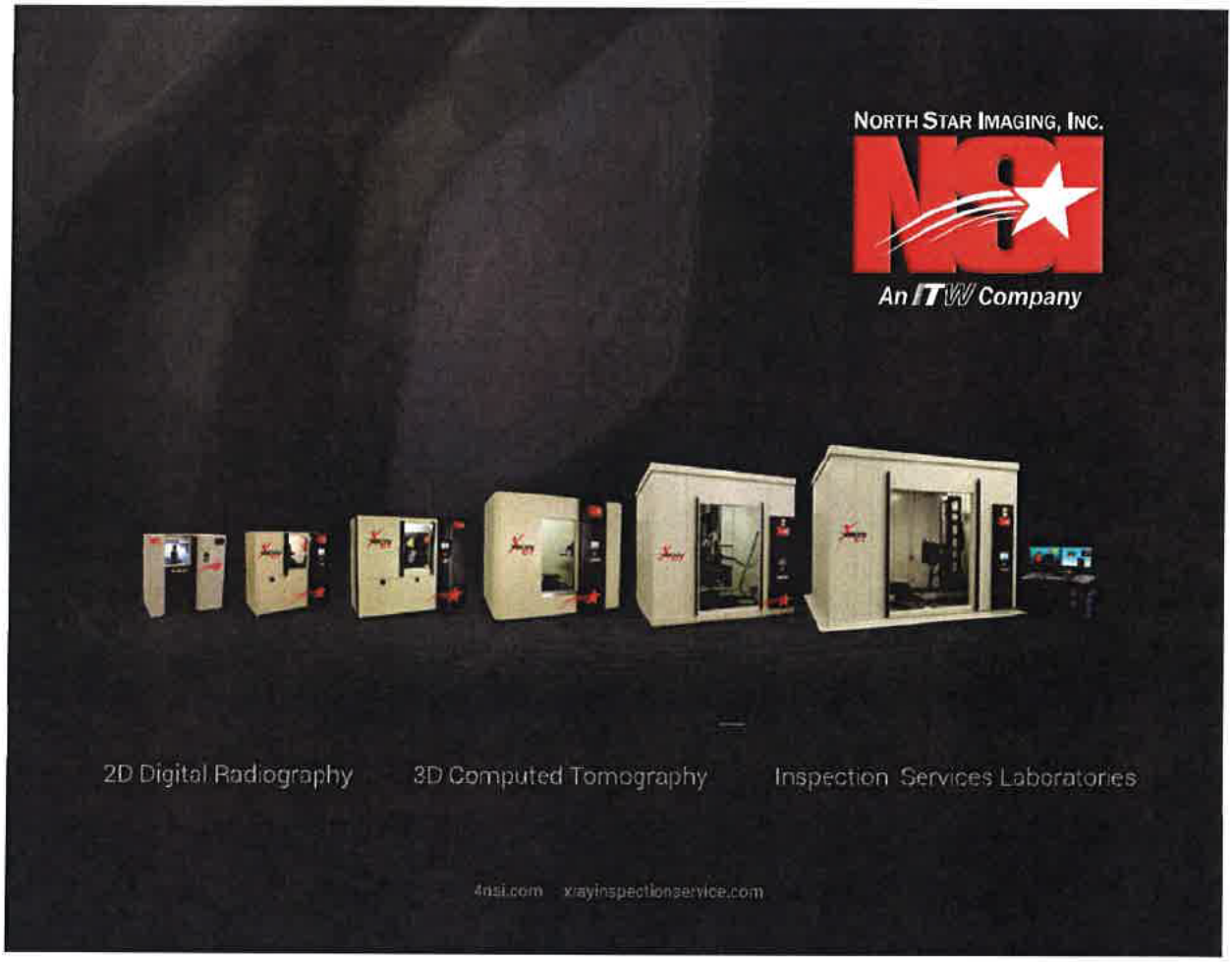
From:	Wayne Sumple
Sent:	Wednesday, January 18, 2017 12:48 PM
To:	'sales@4nsi.com'
Subject:	RE: NSI X-5000

Some additional information on what I'm looking for. I have a budget of $450K. Which NSI CT X-ray scanner is the best that I can get for that amount of money. Aerospace parts, jet engine parts, additive manufactured parts, not small parts, but not huge either. Metal, plastic and composite material. Laboratory environment. Will be used to demonstrate CT X-ray scanning technology to manufacturing companies in region. Is the X5000 within my budget? If so, what is the delivery schedule?

From: Wayne Sumple
Sent: Tuesday, January 17, 2017 4:04 PM
To: 'sales@4nsi.com'
Subject: NSI X-5000

I run an Advance Manufacturing Center in CT. Looking for a budgetary estimate for a X-ray CT scanner. The X-5000 looks like the level of machine I may be interested in. What is the cost range of the X-5000?

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us



Celebrating over 28 years of Innovation



North Star Imaging was founded in 1986 by Ken Ness as a Non destructive Testing (NDT) equipment representative and accessory supplier based in the St. Paul, MN area. The firm specialized in industrial X-ray testing. NSI served the upper Midwestern states of Minnesota, North Dakota, South Dakota, Wisconsin and Iowa.

In 1991, North Star Imaging manufactured their first Digital Radiography system. Throughout the 1990's, NSI continued to expand their equipment representative and accessory supplier business across the USA. In 2002, NSI manufactured their first Computed Tomography system.

In 2004, NSI outgrew their St. Paul, MN site and moved into a brand new facility in Rogers, MN. In 2006, the company formed their Inspection Services Group (ISG), which provides need based consulting services for anyone needing X-ray and/or Computed Tomography scanning. The company's X-ray and Computed Tomography systems and services business continued to flourish and in 2009 they expanded their Rogers complex by 33% to keep up with demand.

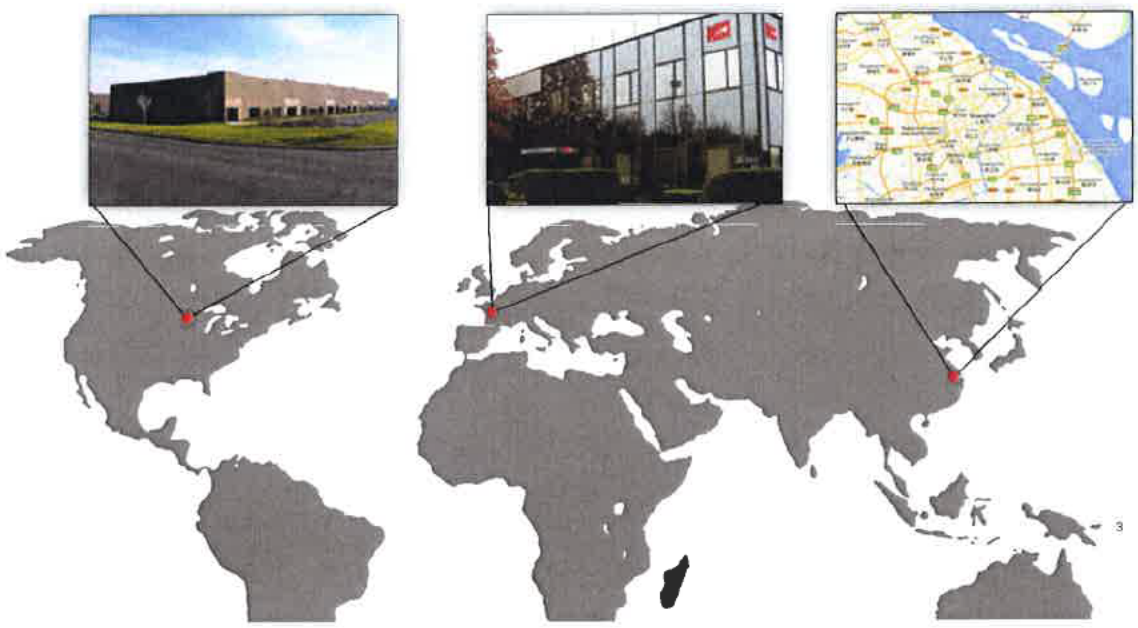
In late 2010, North Star Imaging, Inc. was acquired by Illinois Tool Works (ITW) and became part of ITW's Test and Measurement segment. ITW is a leading diversified manufacturing company with over 100 years of history and over 800 individual business units.

In 2012, with demand continuing to increase both nationally and internationally, North Star Imaging nearly doubled the square footage of their facility in Rogers, MN. The same year, NSI added a physical location in Paris, France.

In 2013, North Star Imaging, Inc. was awarded with ISO 9001:2008 certification as a result of significant changes and improvements to their Quality System to increase efficiency, reduce errors and enrich customer satisfaction.

Truly a Global Company

Today, North Star Imaging is one of the leading manufacturers of 2D Digital Radiography and 3D Computed Tomography systems in the World. Additionally, each worldwide location houses state of the art equipment for demonstration and need based X-ray/CT Inspection Services. No matter your location, NSI has local employees ready to help evaluate your needs, explain the technology and provide thorough training upon installation. Furthermore, each NSI location employs dedicated service personnel, so local help is never more than a phone call away.



What is Digital Radiography?

Digital Radiography, or DR for short, is a 2D X-ray inspection method using a digital X-ray detector in place of X-ray film. DR allows for real-time X-ray inspection of your part or object - no more waiting for film to process! You can make scan adjustments on the fly and also apply digital image enhancements quickly and easily – saving you time.

Digital Radiography detectors are designed to be used time after time, helping to eliminate the cost of consumables – saving you money.

North Star Imaging's Digital Radiography systems are designed to make your business and your team as efficient as possible. Programmed and repeatable inspection sequences, easy to use software and superior image quality lets you focus more monitoring your product quality while also increasing throughput.



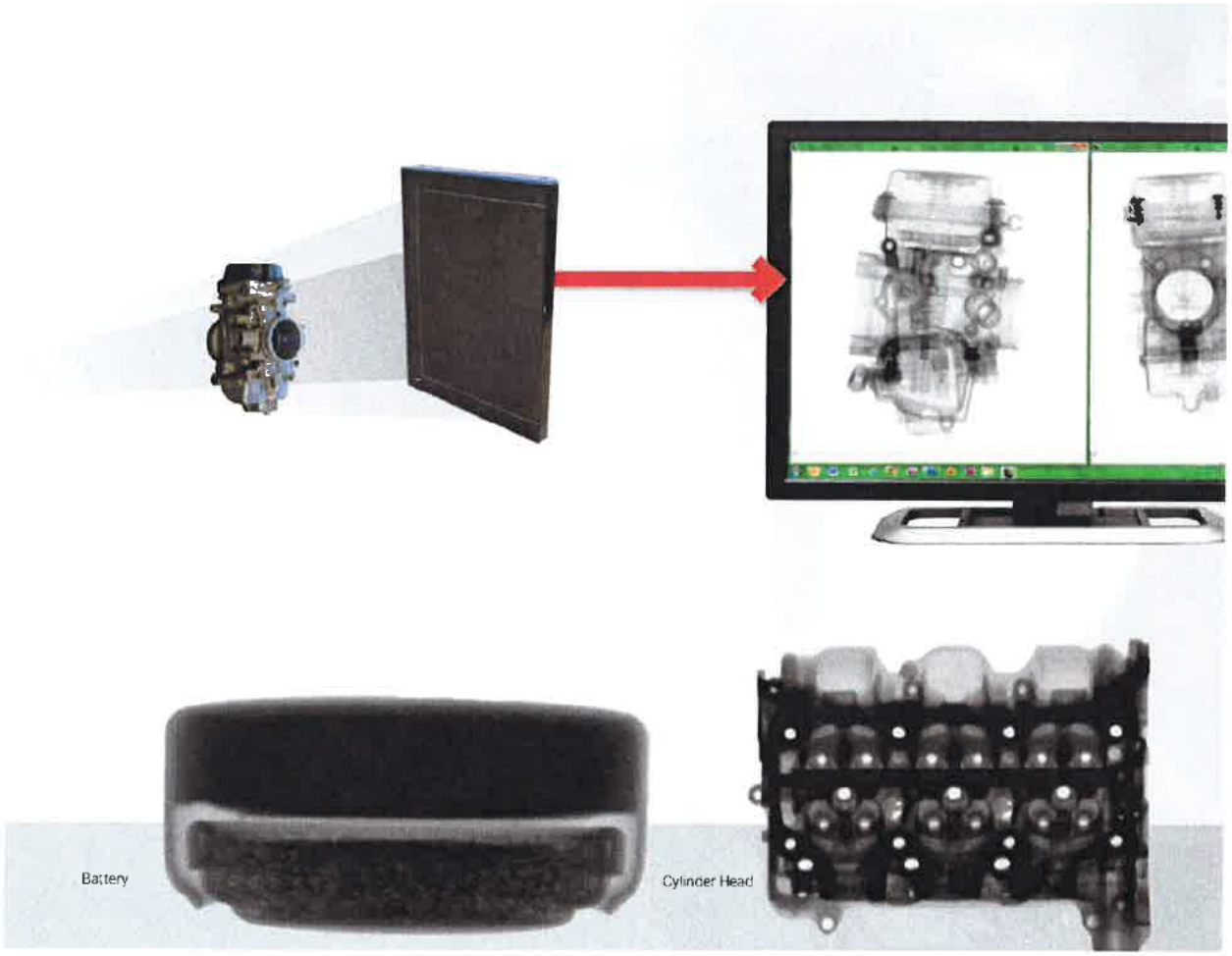


Flashlight

We offer
DR Training
nsi.com/training



Capacitor



Battery

Cylinder Head

What is Computed Tomography

3D Computed Tomography (CT) is a nondestructive scanning technology that allows you to view and inspect the external and internal structures of an object in 3D space. Computed Tomography works by taking hundreds or thousands of 2D Digital Radiography projections around a 360 degree rotation of an object. Proprietary algorithms are then used to reconstruct the 2D projections into a 3D CT volume, which will allow you to view and slice the part at any angle.

3D CT virtually eliminates interpretation errors and opens the door to many capabilities that are not available with any other technology.

CT capabilities include:

- Internal and external measurements
- 3D CAD comparisons
- Void analysis
- Surface reconstructions for reverse engineering
- Finite Element Analysis
- And much more

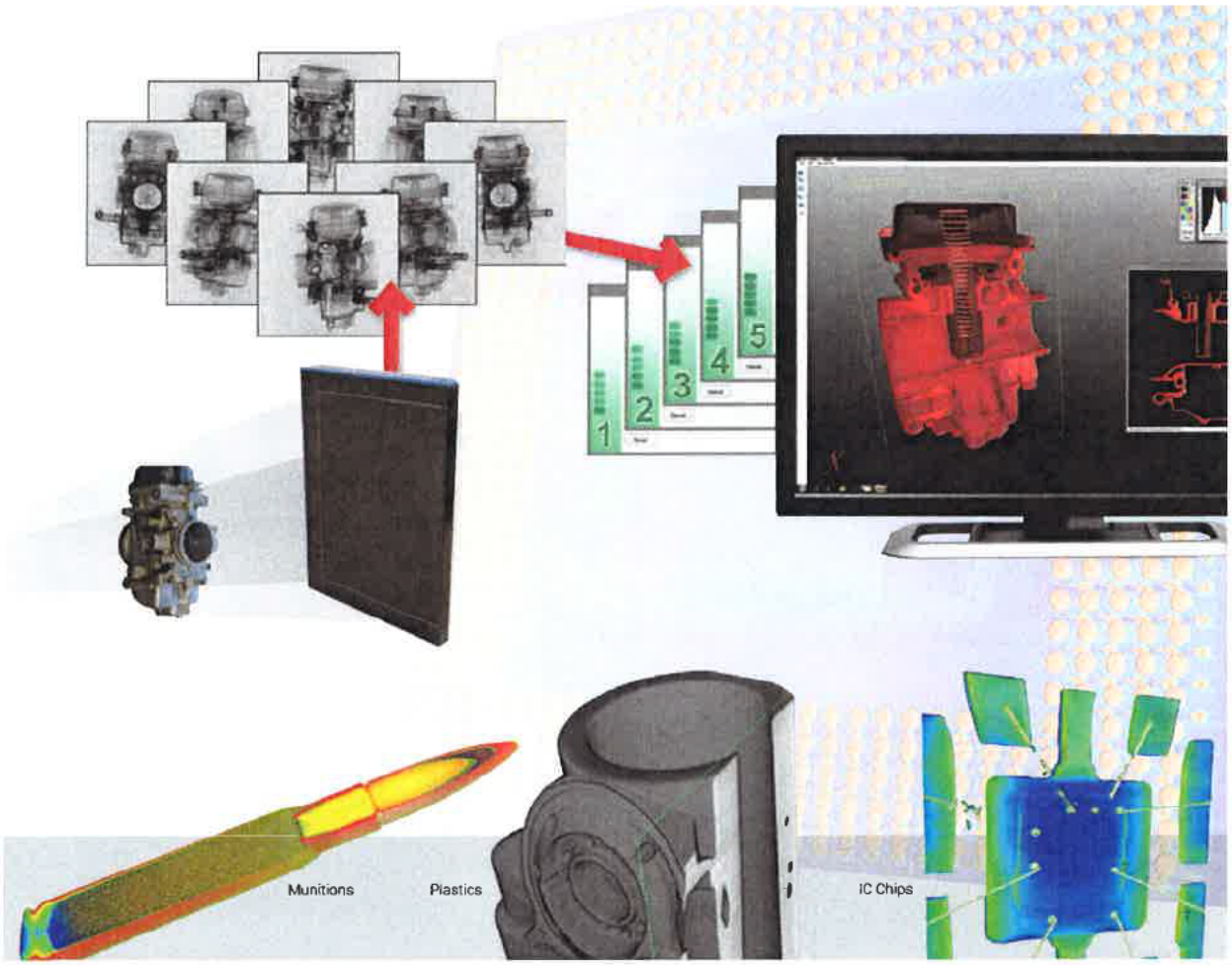


North Star Imaging Computed Tomography systems are the easiest to use in the industry. NSI's efX-CT software uses five simple steps to guide you through the CT scanning process and have you inspecting your product in no time – increasing your quality and efficiency.

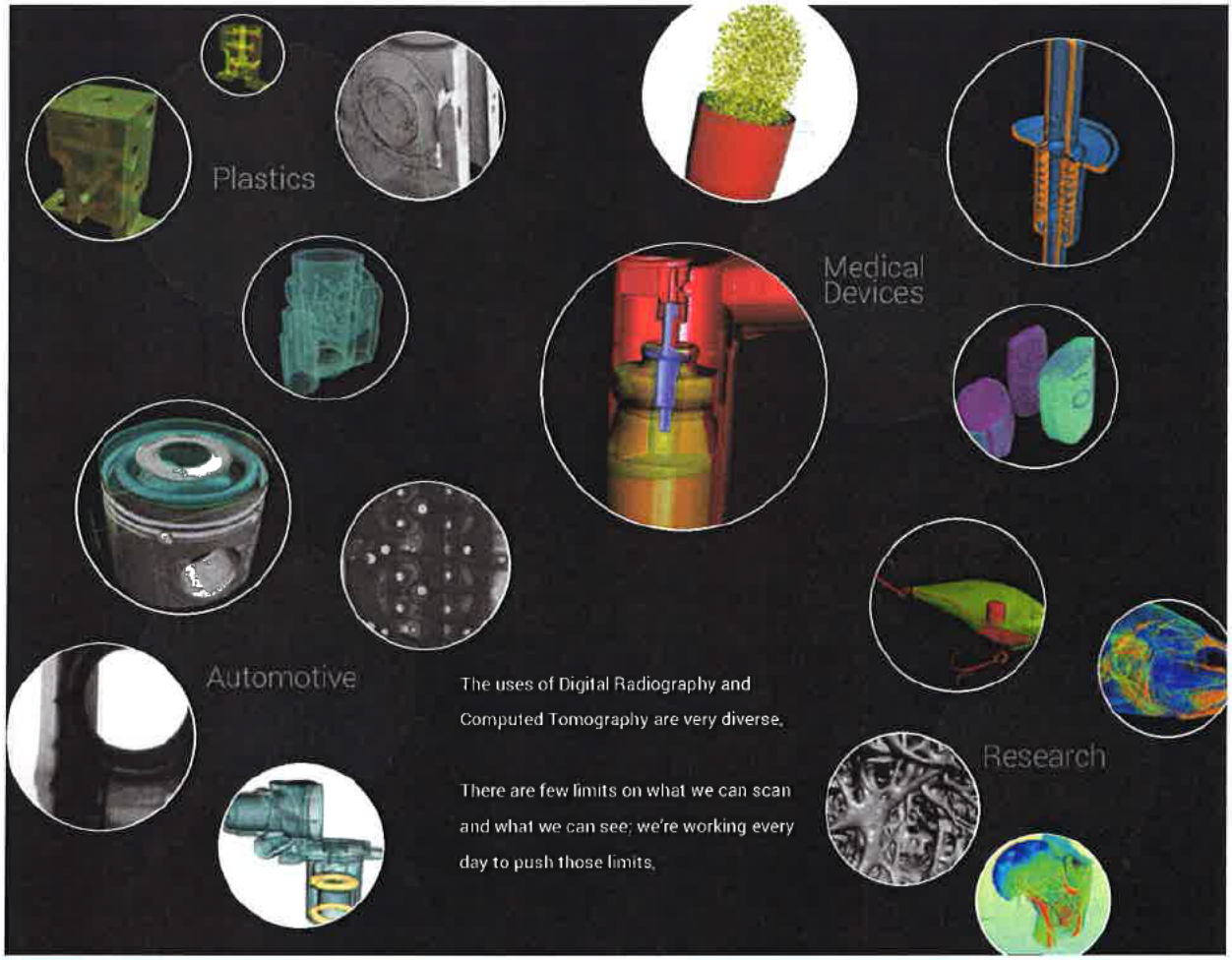
We offer
CT Training
4nsi.com/training



Composites


1
2
3
4
5
Munitions
Plastics
IC Chips


Applications & Markets
Aerospace
Castings
Electronics
Museum



Systems

IMAGIX

Affordability and Simplicity

The ImagiX is North Star Imaging's most compact system. The system can be configured as a desktop unit or a freestanding system. The generous scanning envelope can handle products up to 5" (12cm) in size making it a great choice for laboratories, small electronics and R&D applications.



SYSTEM CAPABILITIES
- Advanced 2D X-ray inspection
- 2D CT Slice reconstruction
- CT volume reconstruction for 3D inspection
- 3D internal and external surface scanning
- 5" (12cm) diameter x 5" (12cm) tall nominal part envelope

CT SOFTWARE
- Comprehensive acquisition, processing and archival program with user-friendly interface
- Automated CT calibration software
- Very fast reconstruction software with option for Graphic Card based algorithm
- Local CT and Limited angle CT reconstruction capabilities
- 3D visualization module with real-time volume rendering, density segmentation, & high performance measurements
- 3D surface model export for CAD compatibility
- Multiple image formats input/output

X-RAY SOURCE
- Micro-focus X-ray tube
- Voltage Range: 10kV – 160 kV
- Focal Spot Size : < 5 microns
- Maximum system resolution: better than 5 microns

X-RAY DETECTOR
- Digital X-ray detector types: Flat Panel or Image Intensifier
- Detector Size: up to 8" x 10" (20cm x 25cm)

MANIPULATOR
- Maximum Sample Weight: 10 lbs (4.5kg)
- 4 Axis of Scan Travel (customization available) : Focal Distance : 24" (61cm) Vertical : 7.5" (19cm) (Exact measurements vary depending on tube, detector and optical configuration)
- Rotational stage with high precision
- Optional motion controlled Z axis

CABINET
- External Dimension: 57" Wide, 30" Deep, 58" Tall (144cm Wide, 76cm Deep, 147cm Tall)
- Cabinet Features: Interior lighting, sliding access door, leaded glass viewing window
- Meets or exceeds 21 CFR 1020.40 and EN 61010-2-091 2012
- System includes one ergonomic desk and chair

X25

Metrology and Submicron Resolution

The X25 is quite possibly the most conveniently sized system on the market. The system offers all of the same creature features as the larger systems while still maintaining the ability to fit through a standard interior door. The X25 is well suited for small to medium sized objects as well as submicron inspection.



SYSTEM CAPABILITIES
- Ideal for submicron X-ray and CT applications
- X-ray Energies from 10kV-160kV
- Geometric Magnification: Up to 4000x
- Overall Maximum System Resolution: 0.5 micron
- 6" (16cm) diameter x 9" (22cm) tall nominal part envelope

CT SOFTWARE
- Comprehensive acquisition, processing and archival program with user-friendly interface
- High performance image processing and measurement functions
- Non-proprietary multiple image format output/input. DICONDE compliant
- Automated program functions for fast analysis
- Multiple window interface for display of raw image, processed image, density data, etc.
- Computed Tomography acquisition module
- Optional 3D Computed Tomography calibration, reconstruction and visualization
- Optional 4D Computed Tomography

X-RAY SOURCE
- Voltage Range: 10kV-160kV
- Minimum Focal Spot Size: 0.5 micron
- X-ray Tube Types: Nano-focus, Micro-focus, Open or Sealed, Transmission

X-RAY DETECTOR
- Digital X-ray Detector Types: Flat Panel (DDA)
- Grade Options: Standard or CT Premium, 14bit or 16bit
- Detector Size: Up to 9" x 11" (22cm x 27cm)
- Characterized to ASTM E2597 Standard

MANIPULATOR
- Maximum Sample Weight: 25lbs (11kg)
- Scan Travel (customization available): Vertical = 9" (22cm), Horizontal = 6" (15cm), Z axis (source to detector) = 39.5" (100cm), Rotation = 360° continuous (*Exact measurements vary depending on tube, detector and optional configurations)
- Part Manipulation Control:
  - All drives variable speed joystick controlled
  - Each axis is independently controlled
- Control-X: Programmable CNC controlled automated scanning with automatic image processing and archiving capabilities

CABINET
- External Dimensions: 73" Wide, 28" Deep, 71" Tall (185cm Wide, 96cm Deep, 180cm Tall)
- Transportable through standard 36" (92cm) wide doors (removable light curtains)
- Cabinet Features: Cable access port with cover, interior lighting, powered sliding access door(s), leaded glass viewing window, safety light curtains
- Steel/lead/steel construction
- Meets or exceeds 21 CFR 1020.40 and EN 61010-2-091 2012
- Touch screen operation
- Vibration isolation system
- System includes one ergonomic desk and chair

X50

Powerful and Ergonomic

The X50 is one of NSI's most popular models for electronics, aerospace components and medical devices. It offers an excellent balance of power and space sensitivity. The system can handle products up to 12" (30cm) in size while seated nicely in your failure analysis lab or busy production line.



SYSTEM CAPABILITIES
- X-ray Energies from 10kV-240kV
- Geometric Magnification: Up to 4000x
- Overall Maximum System Resolution: better than 1µm
- Meets ASTM E2597 Standard
- 8" (20cm) diameter x 12" (30cm) tall nominal part envelope

CT SOFTWARE
- Comprehensive acquisition, processing and archival program with user-friendly interface
- High performance image processing and measurement functions
- Non-proprietary multiple image format output/input. DICONDE compliant
- Automated program functions for fast analysis
- Multiple window interface for display of raw image, processed image, density data, etc.
- Computed Tomography acquisition module
- Optional 3D Computed Tomography calibration, reconstruction and visualization
- Optional 4D Computed Tomography
- Available with vorteX

X-RAY SOURCE
- Voltage Range: 10kV-240kV
- Minimum Focal Spot Size: <1µm
- X-ray Tube Types: Nano-focus, Micro-focus, Mini-focus, Open or Sealed, Transmission or Directional or Dual Head

X-RAY DETECTOR
- Digital X-ray Detector Types: Flat Panel (DDA), Linear Diode Array (LDA), Image Intensifier
- Grade Options: Standard or CT Premium, 14bit or 16bit
- Detector Size: Up to 16" x 16" (40cm x 40cm)

MANIPULATOR
- Maximum Sample Weight: 25lbs (11kg)
- Scan Travel (customization available): Vertical = 12" (30cm), Horizontal = 12" (30cm), Z axis (source to detector) = 53" (134cm), Tilt = +20°/-10°, Rotation = 360° continuous (*Exact measurements vary depending on tube, detector and optional configurations)
- Part Manipulation Control:
  - All drives variable speed joystick controlled
  - Each axis is independently controlled
- Control X: Programmable CNC controlled automated scanning with automatic image processing and archiving capabilities

CABINET
- External Dimensions: 67" Wide, 52" Deep, 79" Tall (221cm Wide, 132cm Deep, 201cm Tall)
- Cabinet Features: Cable access port with cover, interior lighting, powered sliding access door(s), leaded glass viewing window, safety light curtains
- Steel/lead/steel construction
- Meets or exceeds 21 CFR 1020.40 and EN 61010-2-091 2012
- Touch screen operation
- System includes one ergonomic desk and chair

X5000

Universal and Flexible

The X5000 is the most versatile system offered by North Star Imaging. The system boasts a large scanning envelop and excellent ergonomics for loading sizable objects while still maintaining the sensitivity to inspect even the smallest of items.



SYSTEM CAPABILITIES
- X-ray Energies from 10kV-450kV
- Geometric Magnification: Greater than 2000x
- Overall Maximum System Resolution: better than 500nm
- Meets ASTM E2597 Standard
- 32" (81cm) diameter x 48" (121cm) tall nominal part envelope

CT SOFTWARE
- Comprehensive acquisition, processing and archival program with user-friendly interface
- High performance image processing and measurement functions
- Non-proprietary multiple image format output/input. DICONDE compliant
- Automated program functions for fast analysis
- Multiple window interface for display of raw image, processed image, density data, etc.
- Computed Tomography acquisition module
- Optional 3D Computed Tomography calibration, reconstruction and visualization
- Optional 4D Computed Tomography
- Available with vorteX, subpiX, and mosaiX

X-RAY SOURCE
- Voltage Range: 10kV-450kV
- Minimum Focal Spot Size: < 500nm
- X-ray Tube Types: Nano-focus, Micro-focus, Mini-focus, Open or Sealed Transmission or Directional or Dual Head
- Optional Dual Tube configuration

X-RAY DETECTOR
- Digital X-ray Detector Types: Flat Panel (DDA), Linear Diode Array (LDA), image Intensifier
- Grade Options: Standard or CT Premium, 14bit or 16bit
- Detector Size: Up to 16" x 16" (40cm x 40cm)

MANIPULATOR
- Maximum Sample Weight: 250lbs (113kg) (400lbs (181kg) optional)
- Scan Travel (customization available): Vertical = 45" (121cm), Horizontal = 33" (83cm), Z axis (source to detector) = 48" (121cm), Tilt = +20°/-15°, Rotation (optional +/-30°) = 360° continuous (*Exact measurements vary depending on tube, detector and optional configurations)
- Motorized detector travel for variable focal distance adjustment
- Part Manipulation Control:
  - All drives variable speed joystick controlled
  - Each axis is independently controlled
- NSI CNC motion control software for automated scanning with automatic image processing and archiving capabilities
- Option: Rotational stage indexes outside of the cabinet for ergonomic part loading/unloading

CABINET
- External Dimensions:
  - 240kV model: 107" Wide x 60" Deep x 92" Tall (271cm Wide, 203cm Deep, 233cm Tall)
  - 450kV model: 126" Wide x 91" Deep x 102" Tall (320cm Wide, 231cm Deep, 259cm Tall)
- Cabinet Features: Cable access port with cover, interior lighting, powered sliding access door(s), leaded glass viewing window (240kV model only), internal camera monitoring system, safety light curtains
- Steel/lead/steel construction
- Meets or exceeds 21 CFR 1020.40 and EN 61010-2-091 2012
- Touch screen operation
- Includes one ergonomic desk and chair

X6000

Automated and Versatile

The X6000 is specifically designed for castings and other large and heavy products. The system features a programmable C-arm manipulator for automated and repeatable inspection sequences. The massive access door and external indexing rotational stage make loading quick and easy.



SYSTEM CAPABILITIES
- X-ray Energies from 10kV-225kV
- Shielded to 160kV or 225kV
- Geometric Magnification: Greater than 2000x
- Capable of scanning large components
- 48" (121cm) diameter x 60" (152cm) tall nominal part envelope

CT SOFTWARE
- Comprehensive acquisition, processing and archival program with user-friendly interface
- High performance image processing and measurement functions
- Non-proprietary multiple image format output/input. DICONDE compliant
- Automated program functions for fast analysis
- Multiple window interfaces for display of raw image, processed image, density data, etc.
- Optional 2D, 3D & 4D Computed Tomography acquisition module

X-RAY SOURCE
- Voltage Range: 10kV-225kV
- X-ray Tube Types: Transmission or Directional Micro-focus, Mini-focus
- Optional Microfocus Rod Anode or Seeker Tube Design

X-RAY DETECTOR
- Digital X-ray Detector Types: Flat Panel (DDA)
- Flat Panel Detector Size: Up to 16" x 16" (40cm x 40cm)

MANIPULATOR
- Maximum Sample Weight: 400lbs (181kg)
- Scan Travel: Vertical (Y axis) = 70" (177cm), Horizontal (X-axis) = 45" (121cm), Lateral (Z axis) = 45" (121cm), Source to Detector = Max 48" (121cm), C-arm Rotation = +/- 120°, Stage Rotation = 360° continuous (*Exact measurements vary depending on tube, detector and options configurations)
- Motorized detector travel for variable focal distance adjustment
- Part Manipulation Control:
  - All drives variable speed joystick controlled
  - Each axis is independently controlled
- Rotational stage indexes outside of the cabinet for easy part loading/unloading
- Options:
  - eFX CNC programmable CNC controlled automated scanning with automatic image processing and archiving capabilities
  - Lateral detector motion
  - Additional Stage for large component scanning

CABINET
- External Dimensions: 139" Wide x 120" Deep x 132" Tall (353cm Wide, 304cm Deep, 335cm Tall) (varies depending on shielding)
- Cabinet Features: Cable access ports with cover, interior lighting, 59" x 90" (152cm x 228cm) powered bi-parting sliding access door, two 15" x 24" (38cm x 60cm) leaded glass viewing windows, internal camera monitoring system, safety light curtains
- Steel/lead/steel construction
- Meets or exceeds 21 CFR 1020.40 and EN 61010-2-091 2012
- Touch screen operation
- Includes one ergonomic desk and chair

Systems

X7000

Modular and Robust

The X7000 is North Star Imaging's largest standard system. The optional independent horizontal (x-axis) travel of the tube and detector allow for unparalleled inspection capabilities of an elongated object. The system is great for composites, castings, pipes, tubes, welds and similar parts.



SYSTEM CAPABILITIES
- X-ray Energies from 10kV-450kV
- Geometric Magnification Greater than 2000x
- Capable of scanning large components
- 60" (152cm) diameter x 60" (152cm) tall nominal part envelope

CT SOFTWARE
- Comprehensive acquisition, processing and archival program with user-friendly interface
- High performance image processing and measurement functions
- Non-proprietary multiple image format output/input. DICONDE compliant
- Automated program functions for fast analysis
- Multiple window interface for display of raw image, processed image, density data, etc.
- Computed Tomography acquisition module
- Optional 3D & 4D Computed Tomography acquisition module
- Available with vorteX, subpiX and mosaiX

X-RAY SOURCE
- Voltage Range: 10kV-450kV
- X-ray Tube Types: Transmission or Directional Micro-focus, Mini focus
- Optional dual tube configuration

X-RAY DETECTOR
- Digital X-ray Detector Types: Flat Panel (DDA), Linear Diode Array (LDA)
- Flat Panel Detector Size: Up to 16" x 16" (40cm x 40cm)
- LDA size up to 36" (91cm)
- Optional dual detector configuration

MANIPULATOR
- Maximum Sample Weight: 800lbs (362kg)
- Scan Travel: Vertical = 60" (152cm), Horizontal = 120" (305cm), Z axis (source to detector) = 80" (203cm), Tilt = +30°/-30°, Rotation = 360° continuous (Exact measurements vary depending on tube, detector and optional configurations)
- Motorized detector travel for variable focal distance adjustment
- Rotational stage indexes outside of the cabinet for easy part loading/unloading
- Part Manipulation Control:
  - All drives variable speed joystick controlled
  - Each axis is independently controlled
- Options:
  - Control X programmable GUI controlled automated scanning with automatic image processing and archiving capabilities
  - External detector motion
  - Dual tubes and/or dual detectors
  - Additional K-axis for long component scanning

CABINET
- External Dimensions: 156" Wide x 156" Deep x 125" Tall (396cm Wide, 396cm Deep, 317cm Tall) (varies depending on shielding)
- Cabinet Features: Cable access ports with covers, interior lighting, powered bi-parting sliding access door (60" x 90" (172cm x 228cm) door opening), internal camera monitoring system, safety light curtains
- Steel/lead/steel construction
- Meets or exceeds 21 CFR 1020.40 and EN 61010-2-091 2012
- Touch screen operation
- Includes one ergonomic desk and chair

Upgrades

Film to Real Time Digital Radiography

Benefits

- Less consumables = Reduced Costs
- Real time evaluation capability = Increase Productivity
- Higher resolution results = Increased Inspection Capabilities/Quality Control

Typical package includes:

- New digital flat panel X-ray detector (*NSI will help you choose the best detector for your specific application)
- New software
- New real time workstation



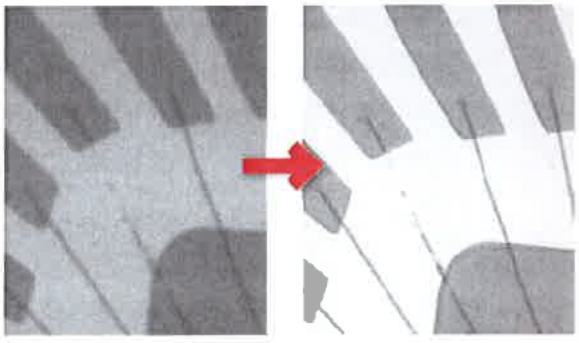
Real Time Digital Radiography Performance Upgrade

Benefits

- Updated software = Increased Productivity and Higher Resolution Results
- Higher resolution results = Increased Inspection Capabilities/Quality Control

Typical package includes:

- New digital flat panel X-ray detector
- New X-ray tube (mini, micro, nano) (90kV to 450kV)
- New DR acquisition and processing software



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Upgrades

2D Real Time Digital Radiography to 3D Computed Tomography Upgrade

Benefits

- Full 3D CT capabilities without the cost of a new CT system
- 3D Metrology and Reverse Engineering capabilities
- Complete 3D inspection = Increased Inspection Quality

Typical package includes:

- efX-CT software – includes calibration, reconstruction and
- 3D visualization
- CT workstation with GPU reconstruction capabilities
- CT acquisition software
- High precision rotational stage
- New X-ray tube and/or X-ray detector optional

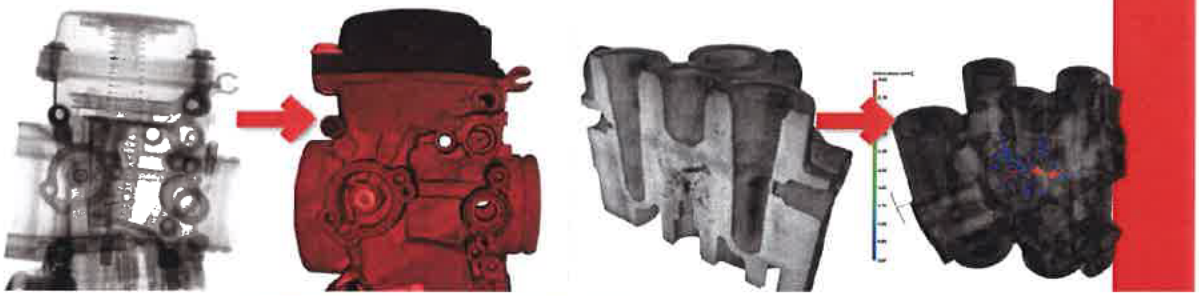
3D Computed Tomography Performance Upgrade

Benefits

- Increased reconstruction speed (up to 50x faster) = Increased Productivity
- Extremely easy to use CT software = Increased Productivity
- Higher resolution results with less noise = Increased Inspection Capabilities/Quality Control

Typical package includes:

- efX-CT Software - includes calibration, reconstruction and 3D visualization
- CT workstation with GPU reconstruction capabilities
- Advanced 3D Analysis Capabilities - Geomagic/VGStudio MAX/ Anizo...
- New X-ray tube and/or X-ray detector optional



Software

efX DR is a new generation DR software developed entirely by North Star Imaging. Exclusively featuring:

- High performance image processing and measurement functions using GPU
- Automatic creation of customizable Technique sheet for operator records
- Easy CT acquisitions: continuous or step, Fan Beam, Cone Beam, voxleX
- Enhanced detector capabilities: larger size (mosaiX) or improved resolution (subpixX)
- Seamless integration with efX-CT software
- DICONDE compliant
- Motion programming and Automated barcode triggered program execution



efX-DR IMAGE PROCESSING SOFTWARE

- Windows 7 Based (XP supported)
- Non-proprietary image storage format (TIFF)
- High performance image processing and measurement functions using GPU
- Live Averaging
- Live Histogram with multiple color tables
- Live line Profile
- Live Rotation between portrait and landscape modes
- Live Measurements
- Live image offset and multiple gain calibration, defective pixel correction
- Live signal to noise and live contrast to noise measurement
- Filters to improve image quality
- Automatic creation of customizable Technique sheet for operator records
- Capture video into AVI files
- Supports digital flat panel detectors, LDAs and digital/analog cameras at 8, 10, 12 and 16 bits
- Supports X-ray sources
- Read and store images in: TIFF 32 bit / 16 bit / 8bit, BMP, JPEG, DICONDE
- Seamless integration with efX-CT software
- Optional CND motion control and teach based programming
- Support for production mode with barcode input and automated system operation

OPTIONAL DETECTOR QUALIFICATION MODULE:

- Designed to meet ASTM E94, E747 and ISO 19232 Rev B. specifications
- Simplifies reporting process to meet above guidelines
- Simple SNR calculation

efX-DR ACQUISITION WORKSTATION:

- Windows® 7 x64 Based (XP supported)
- Quad Core Xeon Processor
- 8 GB RAM
- 1 TB SATA High Speed Hard Drive
- DVD+/-RW Drive
- 10/100/1000 network interface card
- 30" high resolution flat panel monitor

efX-CT is the Easiest, Fastest and Most Complete Industrial CT Software on the Market. Exclusively featuring:

- GPU accelerated CT reconstruction module
- Automatic Parallelization for systems with multiple CPUs and GPUs
- 5 step guided wizard for easy CT reconstruction
- Intuitive interface and OpenGL based 3D volume rendering
- Unique geometry and dimensional calibration, exceeds system/mechanical precision
- Non proprietary data formats, handles broad range of input formats



efX-CT PACKAGE INCLUDES:
- Full software license
- High-end, multi processor CT reconstruction and 3D visualization workstation
- Complete user guide, documentation and calibration tools

efX-CT SOFTWARE INCLUDES:
- User friendly volume viewer
- 2D Viewer, efX-view for X-ray images and CT slices
- CT slices stack import
- Compatible 2D formats include BMP, TIFF, DICOM, DICONDE and most standard formats
- Automated focal spot drift compensation
- Volume format conversion capabilities
- Advanced CT mode for full access to all CT reconstruction parameters
- Filters on projections for noise and artefact correction
- Unique ultra-fast 3D preview of CT reconstructions
- Region of Interest CT reconstruction
- Job list – process all CT reconstructions in a queue
- Interactive density segmentation
- Real time multi-slicing (up to six planes) with measurements
- Volume resizing, cropping and reorienting
- Imperial and Metric measurement systems
- Beam hardening correction
- Surface extraction with export to STL, OBJ, DXF, WRL, PLY, etc
- No limitation in reconstruction size and resolution
- Easy screen capture, video recording and exporting of x/y/z slices
- Production mode with automated reconstruction

efX-CT IS WINDOWS 8.1 BASED (7 AND XP SUPPORTED)

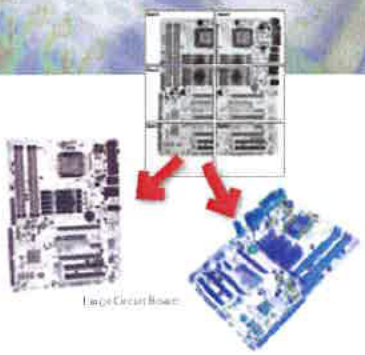
CT RECONSTRUCTION ALGORITHMS AVAILABLE IN **efX-CT**:
- Cone-Beam (FDK) conventional and vorteX
- Fan Beam

OPTIONS INCLUDE:
- GPU acceleration package with NVIDIA supercomputer hardware
- High capacity high speed storage with hardware RAID support
- Geomagic, VGStudioMAX and/or Avizo software packages for more advanced CT processing

Software Innovations

mosaiX

mosaiX utilizes a redesigned manipulator and a proprietary algorithm to stitch multiple images forming one seamless image with a much larger field of view. With **mosaiX** the effective imaging field of view is no longer limited by the detector panel size, and can now be expanded as large as the cabinet will accommodate.



Large Circuit Board

subpiX

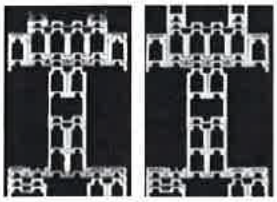
subpiX uses a redesigned motion system and a proprietary algorithm to generate images with improved resolution that is typically double of what the detector alone is capable of achieving.



Line Pair Gauge

vorteX

vorteX is a computed tomography technique that allows you to scan elongated objects that cannot fit into a single exposure, thus enabling higher magnification and increased resolution. The other major benefit of **vorteX** is the elimination of cone beam artefacts, which are usually seen at the top and bottom of conventional CT scans that use short focal distances or wide cone angles.



Conventional CT | vorteX (cone beam artifacts reduced)

High Performance CT Workstation

The NSI **4G Ultimate** CT reconstruction workstation is the most powerful workstation to date. It features four NVIDIA Quadro K6000 GPUs running in parallel and 256GB of RAM. This doubles GPU RAM and quadruples the System RAM from the previous generation **4G eXtreme**. CT reconstruction times are 5x to 50x faster than any other CT workstation available today.



4D CT

4D X-ray Computed Tomography allows users to reconstruct a complete 3D CT model that includes time and motion, creating a truly dynamic volumetric dataset. Because this is an X-ray Computed Tomography process, both the internal and external structures of an object are obtained. This new and exciting technology makes it possible to study form, structure and now – function.



xrayinspectionservice.com

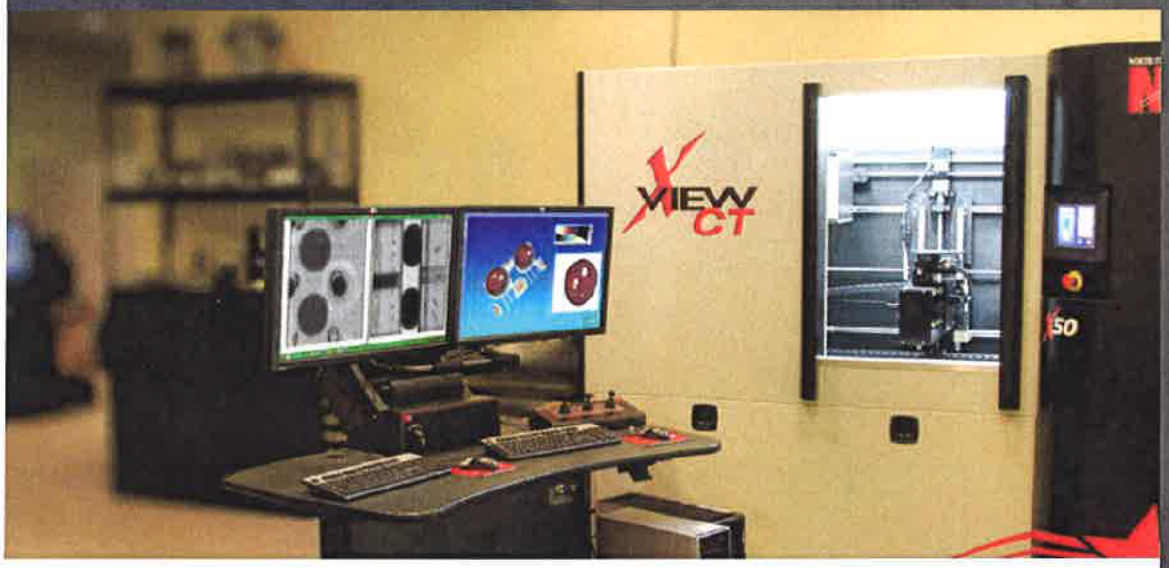
ISG X-VIEW

The Most Advanced X-ray Inspection Laboratory in North America

North Star Imaging's Inspection Services Group provides real-time X-ray inspection and CT scanning services to virtually anyone needing to verify the integrity of internal components. The "inside view" that our team produces is unparalleled in the industry and is the foundation for all of the services that we provide. When you need high accuracy examination of internal components or wish to inspect the dimensions of any assembly, call on NSI's Inspection Services Group. No other company offers a broader range of services or the depth of nondestructive testing expertise.

22 Electronics | Castings | Automotive | Aerospace | Medical Devices

Inspection Services Group



Applications Include:

- Failure Analysis
- Research and Development (R&D)
- Product Quality Compliance/Screening
- Internal and External Measurements
- Reverse Engineering
- Density Analysis
- Product Contamination
- 3D Metrology
- Museum Artifact Digitization
- Weld Quality Analysis
- Assembly Verification

Inspection Services Group

xrayinspectionservice.com

1. Let's talk

Talk with our experienced team to help develop a plan of action.

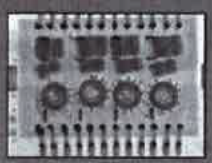




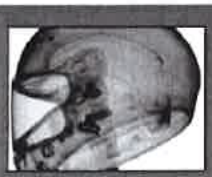
2. Send us the sample

Whether it's 1 or 1000, small or extra-large - we can handle it.


Sports Equipment


Electronics


Castings


Safety Devices


Sensors

Inspection Services Group



3. We scan it

We have the Largest Lab in North America and facilities throughout the world - We'll get it done!

4. Deliver the data

Visit our facility, join us for a web meeting or request a USB drive




Plastics


Circuit Boards


Assemblies


Rubber


Power Equipment

Maintenance Services

Our goal is to help you avoid interruptions by keeping your system state-of-the-art and running smoothly.



Unlimited phone and remote access support

List of recommendations generated upon evaluation of system

Discounts on service labor and parts.

All service is performed by factory trained and authorized system specialist.



Maintenance Services

Thorough 12 Point Inspection..

1. Clean and adjust X-ray Tubes, replace o-rings and adjust Controllers to manufacturers specs
2. Clean, inspect, set, compression and reapply dielectric grease
3. Vacuum system check and change oil if applicable
4. Clean cooler and test safety switches
5. Clean and verify adjustments on the HT generators to preserve tube filament life
6. Clean, inspect and lubricate manipulator
7. Test and Adjust shutter
8. Test and adjust Safety Interlocks and Safety Lamps
9. Test power and supplies and adjust to factory specifications
10. Inspect for proper cable drape
11. Install software updates
12. Perform a Radiation Safety Survey with documentation



We offer replacement X-ray tubes, detectors and additional components

What can NSI do for you?

NORTH STAR IMAGING, INC.
An ITW Company

Corporate Office:
North Star Imaging, Inc.
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North Star Imaging Worldwide
NSI has representative professionals located throughout Europe, Asia and other countries throughout the world.
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Attn: Chittaranjan Sahay
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December 15, 2016

Nikon Reference QOT-150206-21QFT-01-A

Dear Chittaranjan,

Thank you for your recent inquiry.

We are pleased to enclose the attached offer for your review.

Should you require any further information, do not hesitate to contact us.

Sincerely,

Jeremy Wieloch
Sales Manager

Proposal

Item	Product Code	Description	Qty	Total
1		**XT H 225 ST Motorized FID - With MRA - Reflection Source - PE 1620, dual source capable to add transmission source**	1	$ 602,300.00
1.1	**XT H 225 ST Reflection Target system with MRA**		1	Incl.
		- 225 kV 225 W High power X-Ray source *- X-Ray spot size starting from 3 µm* *- Open tube with replaceable Tungsten filament for low cost of ownership* *- Basic Filter Kit* *- 5 axis sample manipulator, 50 kg maximum weight* *- Manipulator max travel of 300 mm in X, 350 mm in Y and 750 mm in Z* *- Precision rotate stage for accurate CT* *- System PC (64 bit) with 16 GB RAM* *- Twin 22" flat panel monitors* *- System temperature stabilised with external chiller* *- System shielded to < 1 µSv/hr, no special precautions needed* *- Motorized Receptacle Alignment (MRA) for electronic alignment of filament* *- Motorized FID for precise detector to source adjustments*		
1.2	**Inspect-X SW for 225 and 320 kV systems**		1	Incl.
		- Control software for CT system *- Includes 2D Radiography analysis tools*		
1.3	**XT H 225 ST PE 1620 Panel with aluminium input window**		1	Incl.
		- Perkin Elmer 1620 detector *- 400 x 400 mm area with 2000 x 2000 pixels* *- 16 bit detector with 200 micron pixels* *- Increased bit depth gives better contrast sensitivity* *- Panel speed maximum 3.5 fps*		
1.4	**Silent X-ray system chiller (120 VAC)**		1	Incl.

Total	$ 602,300.00
System discount	$ 152,301.00
Grand total	**$ 449,999.00**

Terms and Conditions

Quote validity	This quotation is valid till January 15, 2017 (30 days) and is subject in its entirety to confirmation on receipt of order
Delivery	Max. 8 week(s) from receipt of technically cleared order. Note: One at this configuration and price. Subject to prior sale without notice at any time.
Payment terms	40% payable on order – delivery period starts from receipt of payment. Net 0 days after invoice date. 55% payable upon delivery. Net 0 days after invoice date. 5% payable upon acceptance. Net 30 days after invoice date.
Warranty	12 months after acceptance as per standard Nikon Metrology Terms and Conditions (full description available at the end of this document)
Title transfer	Ownership rests with buyer upon Ex Works status including all risks and reward of ownership.
Incoterms	EXW (Ex-works) Nikon Facility Please note that 15 days after notification of readiness, storage cost can be charged in case the goods have not been picked up by your preferred forwarder. The contemplated sale is subject to applicable export control regulations and delivery time starts from receipt of export approval.
Order address	Nikon Metrology Inc. 12701 Grand River Road Brighton, Michigan 48116 United States of America Tel: 810-220-4360 Fax: 810-220-4300 Email: OrderDept.NM-US@Nikon.com
Sales Tax	Quoted prices do not include sales tax. Applicable sales tax will be charged at time of invoicing based on the current rates in your local jurisdiction. If you are sales tax exempt, please provide a sales tax exemption certificate with your purchase order.

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XT H 225 ST

The XT H 225 ST is a Large Cabinet Computed Tomography (CT) system ideally suited to a wide range of materials and sample sizes especially those that are too large for other systems in the range. The system has two interchangeable sources: the Ultrafocus (reflection) target operates between 20 and 225 kV providing a flexible tool for quality laboratories, production facilities and research departments. The Nanofocus transmission target operates between 20-180 kV to give a micron-sized spot leading to sub-micron feature recognition.



The system is fully interlocked and radiation shielded to better than 1 µSv/hr on all external surfaces. This makes the XT H 225 one of the safest systems on the market whilst being fully compliant with international safety regulations.

KEY FEATURES AND BENEFITS

HIGH SPEED CT

- The XT H 225 ST has been optimized for high speed Computed Tomography and real-time X-ray visualization.
- The FAST CT™ acquisition and reconstruction software reduces sample scanning times and provides maximum throughput from the system.

HIGH QUALITY

- Full user control over imaging chain from source to image processing and reconstruction.
- X-Tek high contrast, high power micro-focus source provides X-ray penetration and resolution at 225kV.
- State of the art digital imaging system options for a wide range of applications

SAFETY BY DESIGN

- Full shielded enclosure with continuous fail-to-safe monitoring and Interlocks
- Lead-lined cabinet fully complies to DIN 54113 radiation safety standards and CE regulation

LOW THROUGH LIFE COST

- Long life open X-ray tube – with low cost consumables.
- Planned maintenance schedule throughout system life.
- Compact design – system fits through standard double-doors enabling re-location to suit your business.

EASY TO USE

- Short learning curve – operational within 3 days
- Easy and fast interchange of targets for different uses
- CT wizard™ guides an operator easily through the data acquisition
- Improved failure analysis capability through 5 axis component manipulator.
- Local language support
- Operator and supervisor control modes

TECHNICAL SPECIFICATIONS

X-ray cabinet

The cabinet is shielded to better than 1.0 µSv/hour, fully compliant with international radiation safety regulations. The cabinet features dual, independent safety interlocks on the door as well as visual warnings of X-ray status.

The system is has a sliding access door for sample loading with a large lead glass viewing window and optional fully shielded user access port for experiment/equipment services.

225 kV microfocus X-ray source

The X-ray set comprises:

- Long life 225kV X-ray tube supplied with Ultra-focus target with Tungsten target and simple filter holder
- High voltage generator and control system
- Low maintenance vacuum system
- Essential filter kit

Ultrafocus X-ray set

Operating voltage	30 to 225 kV
Beam current	0 to 1 mA
Power rating	225 W High Power
Focal spot size	3 µm below 3 W[1], rising to 225 µm at 225 W
Spot position	6 mm behind output window
Beam angle	25° included angle, conical beam
Ultra-focus target	Replaceable tungsten target can be indexed under vacuum
Filament type	Tungsten 'hairpin' – 10 supplied free within the spares kit
Target indexing	Manual rotation of target in increments – 1,000 spot positions
X-ray target	Optional 4-metal target for K-edge emission
X-ray filtration	Be output window

[1] Measured at 80kV 3W

180 kV nano-focus X-ray source

The X-ray set comprises:

- Long life 225 kV X-ray tube supplied with NanoFocus target with Tungsten target and collimator
- High voltage generator and control system
- Low maintenance vacuum system
- Basic filter kit

Nanofocus X-ray set

Operating voltage	30 to 180 kV
Beam current	0 to 1 mA
Power rating	20W[1]
Focal spot size	1µm (below 2W)[2] rising to 10 µm depending on power
Spot position	0.25 mm behind output window
Beam angle	170° included angle, conical beam
Ultra-focus target	Replaceable tungsten target can be indexed under vacuum
Filament type	Tungsten 'hairpin' – 10 supplied free within the spares kit
Target indexing	Manual rotation of target in increments – >100 spot positions
X-ray filtration	Be output window

[1] 10 W recommended for long periods

[2] Measured at 80kV 80µA

Common specifications

Tube construction	Machined from high grade aluminum and stainless steel
Vacuum system	Turbo-molecular pump backed by 2-stage rotary vane pump
Cooling system	External sealed water cooling system
Pumping time	Approx. 10 minutes from atmospheric pressure

X-ray controller

Programmable X-ray controller and software provides the following functions:

- X-ray on, X-ray off and pre-warning.
- User adjustable incremental kV steps from 30 – 225 kV in 1 kV or 5 kV steps.
- User adjustable incremental µA steps from 0 – 1000 µA in 1 µA or 5 µA steps.
- Auto-focus, auto-defocus and focus trim
- Filament life timer
- Auto conditioning
- Full diagnostics display
- Individual interlock state display

CT sample manipulator

The XT H 225 ST is supplied with a 5-axis CT and failure analysis manipulator.

Max load	50 kg
Travel	(x) 450 mm x (y) 350 mm x (z) 750 mm
Tilt axis	+/- 30 degrees
Rotate axis	n*360 degrees
Source to detector distance	1,000 mm
Geometric magnification	> 150 times
Turntable resolution	Continuous rotation with 1/1000th degree resolution

A set of general CT sample holders is supplied for ease of sample mounting.

IMAGING SYSTEMS

There are four imaging systems that can be configured in this system. The highest performance all-round detector is fitted as standard.

- Standard - Real time detector (14bit) with 1900 x 1500 pixels with an active area of 467 cm^2.
- Optional – High dynamic range sensor (16bit) with 2000 x 2000 pixels with an active area of 1600 cm^2. Max frame rate 3.5 fps full resolution.
- Optional - High dynamic range high speed sensor (16bit) 2000 x 2000 with active area of 1600 cm^2 Max frame rate 7.5 fps full resolution.

Please see accompanying detector specification for more information on optimization for your application.

IMAGE PROCESSING

Inspect-X image processor and control software includes the following features:

- Live, average, save and load images
- Inspect-X CT wizard™
- Tone curve adjustment and memory
- Programming interface

A manual detailing all features is available upon request.

SYSTEM CONTROLLER

The system is controlled by a high performance PC Workstation operating under Windows XP Professional operating system. The X-ray image and controls are presented to the user on an ergonomic twin 22" TFT monitor display.

Standard Software:

- Inspect-X – X-Tek control software for the system
- X-Tek CT Pro license (32 bit) – an advanced reconstruction for reconstructing the CT data sets
- X-Tek FastCT reconstruction engine (32 bit)
- VGStudio – CT volume rendering software

ENVIRONMENTAL SPECS

Power supply	Single power socket rated at 100-220 V, 50/60 Hz, 20 A, single phase
Temperature control	System supplied with a closed loop chiller to control the cabinet source temperature to eliminate thermal drift from measurements

SYSTEM OPTIONS

1. High dynamic range sensor

The high dynamic range sensor is the best dedicated CT sensor with 2000 x 2000 pixels digitized to 16 bits sensor. This optional sensor can run at 3.5 fps.

2. High dynamic range high speed sensor

The high dynamic range sensor is the best dedicated CT sensor with 2000 x 2000 pixels digitized to 16 bits sensor. This optional sensor can run at 7.5 fps (15 fps at half-resolution) for real-time radiographic inspection at 16-bit sensitivity.

3. 225 kV Rotating target

An optional rotating target is available, this increases the available X-ray flux from the system by a factor of 3-5. This can be used to either increase the acquisition speed at the same signal to noise by this factor or to increase the signal to noise ratio by this factor in the same time.

4. Optional multi metal target

The standard tungsten target gives an X-ray energy spectrum which contains the bremstrahlung spectrum and the specific emission lines of Tungsten. For some materials, in particular composites, it is often better to have the specific emission at lower energies, this can be achieved by using different materials as a target. The multi metal target can be supplied with a choice of metals from Cu, Au, Ag and Mo.

5. Optional advanced filter kit

The advanced filter kit helps produce the best quality CT metrology conditions using the multi-metal target.

6. Sample holders

A selection of additional sample holder is available to increase the flexibility of the XT H 225. These include:-

- Self centering chuck
- Self centering vice

CT OPTIONS

1. Optional Advanced CT upgrade

This package upgrades the XT H 225 system to one of the fastest CT systems on the market.

The Advanced CT option includes a high performance 64-bit reconstruction workstation with following minimum specifications:

- 24GB RAM – for large volume visualization
- 1.2Tb storage – for data storage and retrieval
- 24” LCD monitor – for crisp image display
- Microsoft keyboard and mouse – for simple control

Full specifications of the Advanced CT package are available on request.

2. Additional workstations

In order to maximize the throughput from the system it is beneficial to have additional advanced CT processing stations. In order to facilitate this Nikon Metrology offers an advanced 64-bit PC specifically configured to optimize CT volume reconstruction and analysis. *Requires Option 1.*

Minimum PC specifications:

- 64-bit PC with Windows XP with 30” TFT monitor
- 32 Gb RAM

3. Workstation upgrade , 30” monitor

This replaces the 24” monitor on the reconstruction PC with a high performance 30” TFT monitor.

4. Workstation upgrade RAM Options

This is additional 64Gb RAM for use with any workstation running VGStudio MAX to enable larger volume rendering.

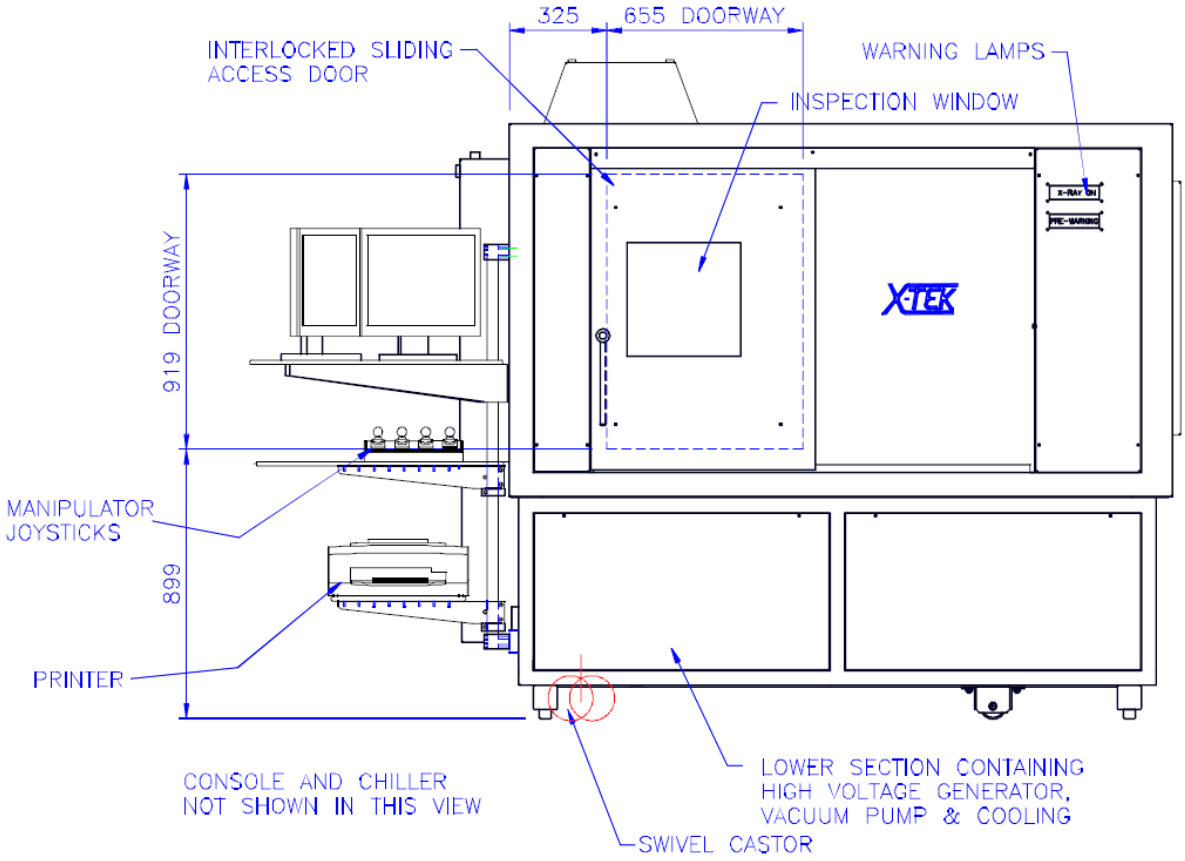
5. Volume Analysis software - upgrades

We recommend upgrading VGStudio to VGStudio MAX for use on additional workstations. There is a choice of:

- VGStudio MAX 64-bit 1 workstation license

- VGStudio MAX 64-bit 1 multi-workstation license
- Advanced analysis modules
    - Defect Analysis module
    - Wall thickness module
    - Co-ordinate measurement module
    - Cad comparison (Actual / nominal) (requires Co-ordinate measurement module)
    - Bundle module discounts for 2, 3 & 4 modules available

DIMENSIONS



Weight 4,200 kg

System dimensions: Width 2,414 mm; Depth 1,275 mm; Height 2,202 mm

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NIKON METROLOGY, INC.

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9 This quotation is personal to Buyer, and Buyer cannot assign or transfer, in whole or in part, its rights or obligations under this quotation nor can Buyer appoint any other person or entity to act for or instead of it without Nikon Metrology' prior written consent in each instance, and any purported or violative assignment or transfer shall be void and of no force and effect Any change in Buyer's ownership (including but not limited to the transfer of shares of Buyer's stock), control or management shall be deemed an assignment or transfer for the purpose of this Paragraph 9 Buyer agrees that Nikon Metrology may at its sole discretion assign this quotation to an affiliate For purposes of this Paragraph 9, affiliate means any person or entity that directly or indirectly controls, is controlled by or is under common control with Nikon Metrology

Innovation Technology Center (ITC)

The State of Connecticut is looking for Connecticut defense manufacturers who want to evaluate if Structured Light Scanning (SLS) technology works for them. CT manufacturers can have a Demonstration Project performed at the newly constructed ITC. The ITC is sponsored by the Department of Defense Office of Economic Adjustment and the Connecticut Department of Economic and Community Development. The ITC is 1000 ft^2 of lab space managed by the Connecticut Center for Advanced Technology Inc. (CCAT) in East Hartford. There is no cost to participate.

WHAT IS A DEMONSTRATION PROJECT?

A demonstration project will allow CT manufacturers to evaluate structured light scanning technology against technologies (CMM or manual inspections) they are currently using. This will be done by using new technology on real parts and comparing results to what suppliers currently are achieving. A Structured Light Scanning Demonstration Project will allow suppliers to have one of their own manufactured parts scanned using the structured, blue light scanner available at the ITC:

- The GOM ATOS Scanbox 5108 is an optical 3D measuring machine developed for quality control in larger production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. (GOM Website)

CCAT personnel will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so that results from the new technology can be compared directly to results from the current technology being used by the supplier.

WHY DO AN SLS DEMONSTRATION PROJECT AT THE ITC?

- Mechanical measuring machines capture data in a point-based or linear manner while optical 3D coordinate measuring systems provide full-field deviations of 3D actual coordinates and CAD data
- The GOM ATOS machine is one example of optical scanning technology
- Compare new technology capabilities to current technology capabilities
- Evaluate impact on effectiveness, efficiency and productivity of new technology
- A Demonstration Project is FREE to CT defense manufacturers

A Non-Disclosure Agreement (NDA) can be executed to protect the manufacturer's process knowledge. CCAT is an ITAR controlled facility.

HOW DO I APPLY?

Complete the simple on-line application by going to the ITC Assistance Application and checking the box for "Structured light scanning/reverse engineering", or contact Mr. Wayne Sumple at CCAT or Mr. Ken Devins at Belcan.

Wayne Sumple
CCAT's Advanced Manufacturing Center
409 Silver Lane
East Hartford, CT. 06118
wsumple@ccat.us
860-282-4222

Ken Devins
Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
kdevins@belcan.com
860-683-5367

DEMONSTRATION PROJECT PROCESS

1. CT manufacturer to sign Non-Disclosure Agreement (NDA)
2. CT manufacturer to sign Export Control Intake Certification (ECIC)
3. CT manufacturer to complete Assistance Application for Structured Light Scanning
    a. Describe part(s) to be scanned
        i. Name of part
        ii. # of parts
        iii. Special handling instructions
    b. STRUCTURED LIGHT SCANNING (SLS)
        i. Identify data to be gathered during SLS demonstration project
            1. Time to process
            2. Cost to process - material consumed during process
            3. Metrology criteria – list of specific measurements or dimensional values required for evaluation of SLS
            4. Comparison of new measurements or dimensional values generated with SLS in the ITC to existing data taken by the SME at their facility
            5. Shipping/receiving instructions
    c. Provide format for report data
    d. Identify how part(s) will be delivered to/from ITC
        i. Supplier to hand carry to ITC
        ii. Supplier to ship to ITC

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]	Complete	CCAT	[redacted]
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)		Implemented	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)		Implemented	CCAT	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)		Implemented	CCAT	
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)		Implemented	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)		Implemented	CCAT	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)		Implemented	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)		Implemented	CCAT	
Phoenix Manufacturing	Brad Hodgdon, Rob Revere, Salvador Robustelli	Structured Light Scanning (SLS)		Implemented	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)		Investigating	CCAT	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)		Not interested	CCAT	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Deburring House Inc.	Stephen Cyr - Quality Mgr	Equipment Recommendation and Engineering Services	[redacted]	Completed	Draper	[redacted]
GKN Aerospace	Martin Thorden - President,	Process Improvement, Equipment Recommendation and Engineering Services	[redacted]	Implemented	Draper	[redacted]
Habco Industries	Brian Montanari President & CEO	Process Improvement and Equipment Recommendation	[redacted]	Completed	Draper	[redacted]
Jonal Laboratories, Inc.	Marc Nemeth - President	Process Improvement and Equipment Recommendation	[redacted]	Implemented	Draper	[redacted]
Admill Machine	Al Parlow	Process Improvement	[redacted]	Investigating	Draper	[redacted]
Avalon Advanced Technologies & Repair Inc.	Vino Franklin - President, Jeffrey Kelly Quality Mgr	Process Improvement	[redacted]	Investigating	Draper	[redacted]
CAM Group LLC		Equipment Recommendation	[redacted]	Investigating	Draper	[redacted]

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Flanagan Industries (EDAC)	DECD to define	Equipment Recommendation	[redacted]	Investigating	Draper	[redacted]
Polar Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mgr			Withdrawn	Draper	

Supplier	Part Size (Inches)
AlphaQ	24” cube, 36” cube
Aerospace Testing Labs	20 to 48
Alloy Specialties	48
B/E Precision	24
Birken	8 to 30
EDAC	20
Flanagan	42
GKN	3 to 48
KTI – weld	30” diameter x 10” long, 48” diameter x 60” long
LFI	3
Prospect Machine Products	43”
Satellite Tool & Machine CO	42

Contact	Supplier	Part type	Part Size (Inches)	DOD	F35	Other	In House NDT	X-ray Source	Contact	Address
Tom, Wayne	ACMT	Airfoils							Michael Polo	
	Aerospace Testing Labs	Metal & Composite	20 to 94				Yes			
	Alloy Specialties		48				No	Outsource		
	Birken		8 to 30				No	Outsource	Gary Connelly, Gary Greenberg, Tom Cardone	
	B/E Precision		24				Yes	Outsource	Glen Ford	
Wayne	EDAC		20				No	Outsource		
Wayne	Flanagan		42	Yes	?		No	Outsource	Kevin Flanagan - President, John - Quality Mgr	
Tom	GKN		3 to 79	Yes	?		Yes	No CT Xray	Andreas Anderson, Martin Thorden	
	LFI		3				Ultrasonic	No CT Xray		
	Metals Testing Company		96				Yes	No CT Xray	Robert Delisle	
Wayne	Satellite Tool & Machine CO		42	Yes	?		No	No CT Xray	Jack Lukasik - President	
Wayne	New England Airfoil Products								Donal Budds, Glenn Pac	
Wayne	Y - Addearo		Various							
Wayne	Y – AlphaQ		24" cube, 36" cube							
Wayne	Y – KTI – weld		30" diameter x 10" long, 48" diameter x 60" long							
Wayne	Y – Prospect Machine Products		43"							
Wayne	? – Phoenix									
Wayne	? - First Aviation									
Wayne	? – AeroCision									
Wayne	? – Pegasus									
Wayne	N - Jonal									
Wayne	N – Horst Engineering									
Wayne	N – Alloy Engineering									

Feature	NSI X5000	Nikon 225	Procon CT-Alpha	GE V TOME X S240
Machine footprint	9' x 14'	4’ x 8’	TBD	10" x 16"
Machine weight	6000 kg	4,200 kg	2,600 kg	13,000 kg
Approx. Part Size / Area Capability	32" x 48"	14” x 17”	19" x 24"	24” x 35”
Part Weight Limit	113 kg	50 kg	90 kg	50 kg
X-ray Source	225kV	225 kV	225 kV	140 kV
Delivery schedule	10 weeks	8 weeks	16 weeks	12 to 16 weeks
Price	$450K	$450K	$450	$450
Comment	Best ITC fit for part size capability	Prefer larger than 14" by 17"" sample size	Prefer larger than 19" by 24" sample size	Needs active room AC; Large Part Size/Area capability is benefit, inadequate X-ray source
Contact	Jason Dimon at NHS	Ken Gribble at Nikon	Joachim Godat at ProCon	Jim Bednar at GE Oil & Gas

Feature	NSI X5000	Nikon 225	Procon CT-Alpha	GE Speed Scan CT 64 V TOME X S240	Microphotonics
Machine footprint	9' x 14'	4 x 8	TBD	8 x 13 10" x 16"	TBD
Machine weight		4,200 kg	2,600 kg	13,000 kg	TBD
Approx. Part Size / Area Capability	32" x 48"	14" x 17"	19" x 24"	24" x 35"	8" x 8"
Part Weight Limit	113 kg	50 kg	90 kg	50 kg	25 kg
Smallest 3D detail			3µm	≥ 5 mm^3	
X-ray Source	225kV	225 kV	225 kV	140 kV	
X-ray Spot Size		3-225 µm	3-200 µm		
X-ray Detector		127-200 µm	138 µm	≥300 µm	
Delivery schedule	10 weeks	8 weeks	16 weeks	12 to 16 weeks	TBD
Price	$450K	$450K	$425	$450	TBD
Comment	Best ITC fit for physical dimensions and part size capability	Next best ITC fit for physical dimensions and part size capability	Good – but prefer larger than 12"x12" sample size	Machine too large for ITC; Needs active room AC; Large Part Size/Area capability is benefit, inadequate X-ray source	Restricted to smallest sample size
Origin	USA	Japan	Germany		
Contact	Jason Dimon at NHS		Andreas Kirste at ProCon	Mark Clayton at GE Digital Solutions , Jim Bednar at GE Oil & Gas	

Feature	Nikon 225	CT-ALPHA
Approx. Part Size / A	14" x 17"	19" diameter x 24 " h
Part Weight	50 kg	90 kg
Smallest 3D detail		3µm
X-ray Source	225 kV	225 kV, 300 Watts
X-ray Spot Size	3-225 µm	3-200 µm
X-ray Detector	127-200 µm	138 µm 420 x 420 mm, 2000

ProCon, CT Alpha - €425K, 16 weeks, 19"x24"

NSI, X5000 - $450K, 10 weeks, 36"48"

Nikon, 225 - $450K, 8 weeks, 14"x17"

GE, V TOME X S240, ????, ?????, 10"x16"

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 08/07/2017 11:40:34 AM
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>; Moertle, Amy K. <AMoertle@belcan.com>
Subject: RADE Task 5 July 2017 Invoice and Progress Report
Attachments: DECD RADE 5 Status 7-31-17.xlsx Supplier Status CCAT 7-31-17.xlsx Supplier Status Draper 7-31-17.xlsx NSI Installation Schedule 7-31-17.xlsx 7-30-17 Invoice 2253-323.pdf

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Carmen,

1) Belcan has updated and attached status files for cumulative activities at CCAT and Draper.
2) The delivery date for the NSI X5000 X-ray Scanner has been moved to 8/14/17 from the previous 8/21/17 date. I anticipate that the commissioning date will move up as well, but that is yet to be confirmed. The revised schedule is attached.
3) Belcan is continuing to compile a summary of results from the suppliers that have completed projects at the ITC.
4) Belcan requests a copy of the Draper Sustainment Strategy Report for reference in the Belcan Sustainment Plan and Lessons Learned Report.
5) The Belcan invoice for July services is attached. As requested for planning purposes invoices for the 9 weeks in August and September are estimated to average ~$8,000 per month.

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Belcan

INVOICE

INVOICE NO.

2253323

Belcan Engineering Group, LLC
10200 Anderson Way
Cincinnati OH 45242
(513) 891-0972

Invoice Date: 07/30/17

Week Ending **07/30/17**

Customer P.O. No. ECDM1-0000013114

Belcan Job#: 3549030

Terms: Net 60 Days

CT DECD (Dept. of Economic & Comm. Dev)
Business & Econcomic Development
505 Hudson Street, 4th Floor
Hartford CT 06106-7106 USA

Prior Invoiced: $58,987.50

Attn.: Michelle Richmond

P.O. Limit: $148,500.00

RADE 2- Task 5

STOCK COMMERCIAL

Technical Contact: Rios-Molina, Carmen

ITEM	TYPE	UNITS	RATE	AMOUNT
Technology Project Manager	Straight Time	90.00	75.00	6,750.00

PLEASE REMIT TO:
Belcan Engineering Group, LLC
Lockbox 771430
1430 Solutions Center
Chicago IL 60677-1004

PLEASE REMIT THIS AMOUNT-> $ 6,750.00
IN U.S. DOLLARS THANK YOU

ORIGINAL

Task 5 – Manufacturing Innovation

Increase CT Companies' cost competitiveness through specialized process innovations and technologies

Sub Tasks:

5.1 Hire technical coordinator
5.2 Acquire and/or lease machinery, equipment
5.3 Installation of machinery and equipment
5.4 Perform outreach to supply chain
5.5 Identify training needs
5.6 Deliver training (if/when appropriate)
5.7 Process Improvement project implementation
5.8 Analyze/report on manufacturing innovation

Deliverable:

- CT Innovation Technology Center is established, operational, and staffed
- Suppliers are aware of ITC and its capabilities
- Participating companies' staff trained on new processes and technologies
- Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies
- Manufacturing Technology Innovation Needs Statement

Metrics:

- A minimum of 20 supply chain companies participate
- A minimum of 10 projects implemented
- Available hours used on the equipment by suppliers
- Number of projects
- Equipment hours used
- Equipment ordered by suppliers
- Number of processes implementing by supplier in their facility

that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assis

Complete 11/15/16	Belcan
Complete 11/15/16	CCAT
Complete 11/15/16	CCAT
Initial survey 1/31/16, follow-up ongoing	DECD / Belcan
GOM ATOS Complete 11/15/16	CCAT
Complete 12/7/16	CCAT
TBD	Belcan /CCAT /Draper
Preliminary scheduled for 7/20/17	Draper
Complete 12/15/16	CCAT
Initial survey 1/31/16, follow-up ongoing	DECD / Belcan
1/11/2017	Draper / CCAT
Ongoing	Belcan /CCAT /Draper
Computed Tomography	Belcan /CCAT
19	Draper - 8, CCAT - 11
17	Draper 13/ CCAT 4
1600	CCAT
24	Belcan /CCAT /Draper
1200	CCAT
Yes	Draper / CCAT
6	Draper / CCAT

st in meeting immediate demand for the ramp-up in aerospace production.

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)	
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)	
Phoenix Manufacturing		Structured Light Scanning (SLS)	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)	
Alpha Q		Structured Light Scanning (SLS)	
Polamer		Structured Light Scanning (SLS)	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)	

			[redacted]
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)	
Vista International Soundstik		Structured Light Scanning (SLS)	
Aerospace Alloys		Structured Light Scanning (SLS)	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)	
Barnes Aerospace		Structured Light Scanning (SLS)	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)	

Status	Project Lead	Follow Up/Notes
ITC & Supplier Complete	CCAT	[redacted]
ITC Complete - Awaiting supplier conclusions	CCAT	
ITC Complete - Awaiting supplier conclusions	CCAT	
ITC & Supplier Complete	CCAT	
Active	CCAT	
Active	CCAT	
~~Active~~ Withdrawn	CCAT	
Investigating	CCAT	
Investigating	CCAT	
Investigating	CCAT	
Investigating	CCAT	
Investigating	CCAT	

Investigating	CCAT	[redacted]
Investigating	CCAT	
Not interested	CCAT	
Not interested	CCAT	
Not interested	CCAT	
Not interested	CCAT	
Not interested	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Suppl er Name	Supplier Point-of-Contact	Project Type	Project Descript on	Status	Project Lead	Fo low Up/Notes
Debu ng House Inc.	Stephen Cy - Qual ty Mg	Equ pment Recommendat on and Eng nee ng Se v ces	[redacted]	Completed	D ape	[redacted]
GKN Ae ospace	Ma t n Tho den - P es dent,	P ocess Imp ovement, Equ pment Recommendat on and Eng nee ng Se v ces	[redacted]	Implemented	D ape	[redacted]
Habco Indust es	B an Montana P es dent & CEO	P ocess Imp ovement and Equ pment Recommendat on	[redacted]	Completed	D ape	[redacted]
Jonal Labo ato es, Inc.	Ma c Nemeth - P es dent	P ocess Imp ovement and Equ pment Recommendat on	[redacted]	Implemented	D ape	[redacted]
Adm E Mach ne	Al Pa low	P ocess Imp ovement	[redacted]	Inact ve	D ape	[redacted]
Avalon Advanced Technolog es & Repa Inc.	V no F anKl n - P es dent, Jeff ey Kelly Qual ty Mg	P ocess Imp ovement	[redacted]	Inact ve	D ape	[redacted]
CAM G oup LLC		Equ pment Recommendat on	[redacted]	Inact ve	D ape	[redacted]
Flanagan Indust es (EDAC)	DECD to def ne	Equ pment Recommendat on	[redacted]	Inact ve	D ape	[redacted]
Pola Co po at on	Andy Kowalsk - P es dent, Tyson Szewczyk - Qual ty Mg		[redacted]	W thd awn	D ape	[redacted]

	Timeline, Milestones and Schedule
Date	**Activity**
12/15/2016	***DECD receive quote for NSI X-Ray Imaging Systems and Equipment***
12/31/2016	***DECD negotiations completed***
~~***5/15/2017***~~ ***5/30/2017***	***Purchase Order to be submitted by DECD***
7/24/2017	**Complete ITC room preparations to install equipment**
~~**8/21/2017**~~ **8/14/2017**	**NSI equipment delivered to DECD at the ITC in East Hartford**
8/25/2017	**Complete rigging equipment from loading dock to final location, hook up**
9/8/2017	**Complete set-up, installation, testing**
9/18/2017	**NSI equipment machine commissioned and Acceptance Test completed**

Responsible Party
NSI
DECD
DECD
CCAT
NSI
CCAT
NSI
NSI

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 07/11/2017 02:30:16 PM
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>; Moertle, Amy K. <AMoertle@belcan.com>
Subject: RADE Task 5 June 2017 Invoice and Progress Report
Attachments: NSI Installation Schedule 5-30-17.xlsx 6-30-17 Invoice 2957_001.pdf DECD RADE 5 Status 6-30-17.xlsx Supplier Status CCAT 6-30-17.xlsx Supplier Status CCAT 6-30-17.xlsx

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Carmen,

1) Belcan has updated and attached status files for cumulative activities at CCAT and Draper.
2) Facility preparation in the ITC at CCAT is proceeding on schedule (see attachment) in anticipation of the installation of the NSI X5000 X-ray Scanner.
3) Belcan is compiling a summary of results from the suppliers that have completed projects at the ITC.
4) Belcan requests a copy of the Draper Supplier and Innovation Reports for reference in the Belcan Lessons Learned Report.
5) Andy Goenner has been assigned Project Manager from NSI responsible for coordinating with CCAT on installation of the X5000 X-ray Scanner.
6) Amy Moertle has taken over invoicing from Raven Helton at Belcan.

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Belcan

INVOICE

INVOICE NO.

2241275

Belcan Engineering Group, LLC
10200 Anderson Way
Cincinnati OH 45242
(513) 891-0972

Invoice Date: 06/25/17

Week Ending **06/25/17**

Customer P.O. No. ECDM1-0000013114

Belcan Job#: 3549030

Terms: Net 60 Days

CT DECD (Dept. of Economic & Comm. Dev)
Business & Econcomic Development
505 Hudson Street, 4th Floor
Hartford CT 06106-7106 USA

Prior Invoiced: $51,375.00

Attn.: Michelle Richmond

P.O. Limit: $148,500.00

RADE 2- Task 5

STOCK COMMERCIAL

Technical Contact: Rios-Molina, Carmen

ITEM	TYPE	UNITS	RATE	AMOUNT
Technology Project Manager	Straight Time	101.50	75.00	7,612.50

PLEASE REMIT TO:
Belcan Engineering Group, LLC
Lockbox 771430
1430 Solutions Center
Chicago IL 60677-1004

PLEASE REMIT THIS AMOUNT-> $ 7,612.50
IN U.S. DOLLARS THANK YOU

ORIGINAL

Task 5 – Manufacturing Innovation

Increase CT Companies cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

Sub Tasks:		
5.1 Hire technical coordinator	Complete 11/15/16	Belcan
5.2 Acquire and/or lease machinery, equipment	Complete 11/15/16	CCAT
5.3 Installation of machinery and equipment	Complete 11/15/16	CCAT
5.4 Perform outreach to supply chain	Initial survey 1/31/16, follow-up ongoing	DECD / Belcan
5.5 Identify training needs	GOM ATOS Complete 11/15/16	CCAT
5.6 Deliver training (if/when appropriate)	Complete 12/7/16	CCAT
5.7 Process Improvement project implementation	TBD	Belcan /CCAT /Draper
5.8 Analyze/report on manufacturing innovation	Preliminary scheduled for 7/20/17	Draper
Deliverable:		
• CT Innovation Technology Center is established, operational, and staffed	Complete 12/15/16	CCAT
• Suppliers are aware of ITC and its capabilities	Initial survey 1/31/16, follow-up ongoing	DECD / Belcan
• Participating companies staff trained on new processes and technologies	1/11/2017	Draper / CCAT
• Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies	Ongoing	Belcan /CCAT /Draper
• Manufacturing Technology Innovation Needs Statement	Computed Tomography	Belcan /CCAT
Metrics:		
• A minimum of 20 supply chain companies participate	19	Draper - 8, CCAT - 11
• A minimum of 10 projects implemented	14	Draper 13/ CCAT 1
• Available hours used on the equipment by suppliers	1250	CCAT
• Number of projects	24	Belcan /CCAT /Draper
• Equipment hours used	1050	CCAT
• Equipment ordered by suppliers	Yes	Draper / CCAT
• Number of processes implementing by supplier in their facility	6	Draper / CCAT

	Timeline, Milestones and Schedule	
Date	**Activity**	**Responsible Party**
12/15/2016	*DECD receive quote for NSI X-Ray Imaging Systems and Equipment*	*NSI*
12/31/2016	*DECD negotiations completed*	*DECD*
~~*5/15/2017*~~ *5/30/2017*	*Purchase Order to be submitted by DECD*	*DECD*
7/24/2017	Complete ITC room preparations to install equipment	CCAT
8/21/2017	NSI equipment delivered to DECD at the ITC in East Hartford	NSI
8/25/2017	Complete rigging equipment from loading dock to final location, hook up	CCAT
9/8/2017	Complete set-up, installation, testing	NSI
9/18/2017	NSI equipment machine commissioned and Acceptance Test completed	NSI

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]	ITC & Supplier Complete	CCAT	[redacted]
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)		Active	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)		Active	CCAT	
Phoenix Manufacturing		Structured Light Scanning (SLS)		Active	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)		Investigating	CCAT	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)		Investigating	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)		Investigating	CCAT	
Alpha Q		Structured Light Scanning (SLS)		Investigating	CCAT	
Polamer		Structured Light Scanning (SLS)		Investigating	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)		Investigating	CCAT	
Vista International Soundstik		Structured Light Scanning (SLS)		Investigating	CCAT	
Aerospace Alloys		Structured Light Scanning (SLS)		Not interested	CCAT	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)		Not interested	CCAT	
Barnes Aerospace		Structured Light Scanning (SLS)		Not interested	CCAT	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]	ITC & Supplier Complete	CCAT	[redacted]
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)		ITC Complete - Awaiting supplier conclusions	CCAT	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)		Active	CCAT	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)		Active	CCAT	
Phoenix Manufacturing		Structured Light Scanning (SLS)		Active	CCAT	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)		Investigating	CCAT	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)		Investigating	CCAT	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)		Investigating	CCAT	
Alpha Q		Structured Light Scanning (SLS)		Investigating	CCAT	
Polamer		Structured Light Scanning (SLS)		Investigating	CCAT	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)		Investigating	CCAT	
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)		Investigating	CCAT	
Vista International Soundstik		Structured Light Scanning (SLS)		Investigating	CCAT	
Aerospace Alloys		Structured Light Scanning (SLS)		Not interested	CCAT	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)		Not interested	CCAT	
Barnes Aerospace		Structured Light Scanning (SLS)		Not interested	CCAT	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)		Not interested	CCAT	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)		Not interested	CCAT	

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	04/05/2017 03:42:54 PM
To:	Molina-Rios, Carmen
Cc:	Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject:	RADE Task 5 March 2017 Status Report
Attachments:	Supplier Status CCAT 3-26-17.xlsx Supplier Status Draper 3-26-17 (Draper Update) (5).xlsx

Carmen,

As requested a summary of RADE Task 5 activity for March is listed below:

1) On March 15th an extension to the Belcan contract thru 9/30/17 was approved by DECD as part of an extension to the overall OEA effort.

2) Thru March the GOM ATOS has accumulated 905 hours on activities including informal demonstrations to visitors and formal demonstrations to 14 companies resulting in 1 complete project, 2 projects completed at the ITC awaiting supplier conclusions and 3 active projects .

3) A summary of GOM ATOS projects at the CCAT/ITC is attached. Paul Murphy of Mallory Industries advised Belcan that he has proposed using Blue Light inspection to his customer as a preferred inspection technique. A demonstration at the ITC for Paul and his customer are being planned.

4) Draper projects with supplier participation are listed below. To date Draper is actively working 11 projects with 4 suppliers with 1 additional project submitted to DECD for approval.

Deburring House – Closed; additional project submitted to DECD for approval.

Habco – Closed; 3 projects complete

GKN – 0 projects in progress / 3 projects complete / 3 Total. Final reports and recommendations are still in the process of being released internally, so projects are technically not yet 'complete'

Jonal – 0 projects in progress / 4 project complete / 4 Total. Final reports and recommendations are still in the process of being released internally, so projects are technically not yet 'complete'

Flanagan, Admill and Avalon projects moved to inactive status.

Flanagan - Currently working with Flanagan to determine best approach forward, including whether new NDA's need to be signed through EDAC. After several outreach attempts earlier this year, Draper never received a new NDA. Status updated to 'Inactive'.

Admill & Avalon – Following Draper's attempt to confirm, pending verification from DECD on confirmation of interest; Draper has not received any further confirmation. Draper had never received confirmation from these companies that they were interested in participating. Status updated to 'Inactive'.

CAM and Polar will not be participating.

CAM - Did not wish to sign the letter of intent or NDA; updating to status to withdrawn or inactive.

Polar –Withdrawn and stated they do not wish to participate.

Regards,

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)	
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)	
Phoenix Manufacturing		Structured Light Scanning (SLS)	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)	
Alpha Q		Structured Light Scanning (SLS)	
Polamer		Structured Light Scanning (SLS)	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)	

			[redacted]
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)	
Vista International Soundstik		Structured Light Scanning (SLS)	
Aerospace Alloys		Structured Light Scanning (SLS)	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)	
Barnes Aerospace		Structured Light Scanning (SLS)	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)	

Status	Project Lead	Follow Up/Notes
ITC & Supplier Complete	CCAT	[redacted]
ITC Complete - Awaiting supplier conclusions	CCAT	
ITC Complete - Awaiting supplier conclusions	CCAT	
Active	CCAT	
Active	CCAT	
Active	CCAT	
Investigating	CCAT	
Investigating	CCAT	
Investigating	CCAT	
Investigating	CCAT	
Investigating	CCAT	
Investigating	CCAT	

Investigating	CCAT	[redacted]
Investigating	CCAT	
Not interested	CCAT	
Not interested	CCAT	
Not interested	CCAT	
Not interested	CCAT	
Not interested	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5) (B) and CGS § 32-244(a)(13)

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description	Status	Project Lead	Follow Up/Notes
Debu ng House Inc.	Stephen Cy - Quality Mg	Equipment Recommendation and Engineering Services	[redacted]	Completed	D ape	[redacted]
GKN Aerospace	Mike Thordent - President,	Process Improvement, Equipment Recommendation and Engineering Services	[redacted]	Implemented	D ape	[redacted]
Habco Industries	Brian Montana President & CEO	Process Improvement and Equipment Recommendation	[redacted]	Completed	D ape	[redacted]
Jonal Laboratories, Inc.	Mike Nemeth - President	Process Improvement and Equipment Recommendation	[redacted]	Implemented	D ape	[redacted]
Admiral Machine	Al Pallow	Process Improvement	[redacted]	Inactive	D ape	[redacted]
Avalon Advanced Technologies & Repair Inc.	Vince Franklin - President, Jeff Kelly Quality Mg	Process Improvement	[redacted]	Inactive	D ape	[redacted]
CAM Group LLC		Equipment Recommendation	[redacted]	Inactive	D ape	[redacted]
Flanagan Industries (EDAC)	DECD to define	Equipment Recommendation	[redacted]	Inactive	D ape	[redacted]
Polar Corporation	Andy Kowalski - President, Tyson Szewczyk - Quality Mg		[redacted]	Withdrawn	D ape	[redacted]

From: Devins, Kenneth <kdevins@belcan.com>

Sent time: 06/07/2017 10:25:44 AM

To: Molina-Rios, Carmen

Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>; Helton, Raven M. <rhelton@belcan.com>

Subject: RADE Task 5 May 2017 Invoice and Progress Report

Attachments: NSI Installation Schedule 5-30-17.xlsx DECD RADE 5 Status 5-31-17.xlsx Supplier Status CCAT 5-31-17.xlsx Lessons Learned-Outcomes-Impacts 5-31-17.xlsx Supplier Status Draper 5-31-17.xlsx 5-31-17 Invoice 2234_123.pdf

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Carmen,

As requested a summary of RADE Task 5 activity for May is listed below and the Belcan invoice for May is attached.

1) The purchase order for the NSI X5000 X-ray scanner was approved on May 30. Delivery, installation, training and supplier participation planning is underway. A revised schedule is attached.
2) An updated summary of RADE Task 5 sub tasks, deliverables and metrics is attached.
3) Summaries of Draper and CCAT RADE Task 5 activity for the week ending 5/31/17 are listed in the attached files.
4) Since November of 2016 when the ITC was officially started, and the GOM ATOS was finally ordered, about 2,500 hours have been spent by AMC personnel in the ITC utilizing the equipment.
   a) CCAT staff have spent ~1,700 hours demonstrating the GOM ATOS scanner to CT manufacturers.
      Activities include:
      Informal demonstrations to visitors touring AMC
      Formal demonstrations to 15 companies
      Currently we have:
      7 companies investigating the technology
      3 active project
      3 complete projects
      2 companies not interested in the technology
   b) CCAT staff spent ~800 hours on learning how to operate GOM ATOS scanner?
      Activities include:
      Preparing space at the AMC for the ITC
      Managing the delivery and installment of the GOM ATOS
      Formal training provided by 3D Systems
      Informal training and practice on operation of hardware and software
5) Belcan has complied a summary of lessons learned and examples of outcomes and impacts from Task 5 activities in developing a business model for future government and commercial partnerships (See attachment).

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

Belcan

INVOICE

INVOICE NO.

2234123

Belcan Engineering Group, LLC
10200 Anderson Way
Cincinnati OH 45242
(513) 891-0972

Invoice Date: 05/28/17

Week Ending **05/28/17**

Customer P.O. No. ECDM1-0000013114

Belcan Job#: 3549030

Terms: Net 60 Days

CT DECD (Dept. of Economic & Comm. Dev)
Business & Econcomic Development
505 Hudson Street, 4th Floor
Hartford CT 06106-7106 USA

Prior Invoiced: $43,612.50

Attn.: Michelle Richmond

P.O. Limit: $148,500.00

RADE 2- Task 5

STOCK COMMERCIAL

Technical Contact: Rios-Molina, Carmen

ITEM	TYPE	UNITS	RATE	AMOUNT
Technology Project Manager	Straight Time	103.50	75.00	7,762.50

PLEASE REMIT TO:
Belcan Engineering Group, LLC
Lockbox 771430
1430 Solutions Center
Chicago IL 60677-1004

PLEASE REMIT THIS AMOUNT-> $ 7,762.50
IN U.S. DOLLARS THANK YOU

ORIGINAL

Task 5 – Manufacturing Innovation

Increase CT Companies' cost competitiveness through specialized process innovations and technologies

Sub Tasks:

5.1 Hire technical coordinator
5.2 Acquire and/or lease machinery, equipment
5.3 Installation of machinery and equipment
5.4 Perform outreach to supply chain
5.5 Identify training needs
5.6 Deliver training (if/when appropriate)
5.7 Process Improvement project implementation
5.8 Analyze/report on manufacturing innovation

Deliverable:

- CT Innovation Technology Center is established, operational, and staffed
- Suppliers are aware of ITC and its capabilities
- Participating companies' staff trained on new processes and technologies
- Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies
- Manufacturing Technology Innovation Needs Statement

Metrics:

- A minimum of 20 supply chain companies participate
- A minimum of 10 projects implemented
- Available hours used on the equipment by suppliers
- Number of projects
- Equipment hours used
- Equipment ordered by suppliers
- Number of processes implementing by supplier in their facility

that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assis

Complete 11/15/16	Belcan
Complete 11/15/16	CCAT
Complete 11/15/16	CCAT
Initial survey 1/31/16, follow-up ongoing	DECD / Belcan
GOM ATOS Complete 11/15/16	CCAT
Complete 12/7/16	CCAT
TBD	Draper
TBD	Belcan /CCAT /Draper
Complete 12/15/16	CCAT
Initial survey 1/31/16, follow-up ongoing	DECD / Belcan
1/11/2017	Draper / CCAT
Ongoing	Belcan /CCAT /Draper
Computed Tomography	Belcan /CCAT
19	Draper - 8, CCAT - 11
14	Draper 13/ CCAT 1
1150	CCAT
24	Belcan /CCAT /Draper
950	CCAT
Yes	Draper / CCAT
6	Draper / CCAT

st in meeting immediate demand for the ramp-up in aerospace production.

Recommendations for Governmnent / Commercial Technology parnerships

Draper

Lessons Learned

a) Provide budget flexibility to Draper based on their assessment of potential be

b) Initial outreach to suppliers should be from DECD/Belcan, not Draper, to allay

Outcomes & Impact

a)Suppliers adopt new technologies to enhance their competitiveness

Example: Ct supplier to the F135 adopted Structured Light Scanning and 3D print

CCAT

Lessons Learned

a) Streamline equipment purchase process to improve facility planning

b) Develop long term sustainability plan

c) Define equipment ownership transition process

d) Establish technology retirement guidelines for facility planning purposes

Outcomes & Impact

a) Suppliers have the ability to test specific technologies available at the ITC witl

Example: After a demonstration on his parts a Ct supplier is working to gain appr

Belcan

Lessons Learned

a) Assign a Technology Manager at initiation of the project to participate is settir

b) Define contract objectives with input from all participants

c) Clarify limitations on sharing proprietary material between the Technology Ma

Outcomes & Impact

a) Coordinate efforts with Draper, CCAT, DECD ands suppliers, promote synergy

Example: Combined the supplier contacts and lists from Draper, CCAT and Belcar

nefits, do not specify budget limits for each supplier or project.
fears of a hidden agenda from Draper.

:ing [redacted]

h minimal cost and no risk
[redacted]

ıg objectives

anager, Contracters and Government Agencies

and avoid redundant efforts
n and identified additional suppliers for participation

	Timeline, Milestones and Schedule
Date	**Activity**
12/15/2016	***DECD receive quote for NSI X-Ray Imaging Systems and Equipment***
12/31/2016	***DECD negotiations completed***
~~***5/15/2017***~~ ***5/30/2017***	***Purchase Order to be submitted by DECD***
7/24/2017	**Complete ITC room preparations to install equipment**
8/21/2017	**NSI equipment delivered to DECD at the ITC in East Hartford**
8/25/2017	**Complete rigging equipment from loading dock to final location, hook up**
9/8/2017	**Complete set-up, installation, testing**
9/18/2017	**NSI equipment machine commissioned and Acceptance Test completed**

Responsible Party
NSI
DECD
DECD
CCAT
NSI
CCAT
NSI
NSI

Supplier Name	Supplier Point-of-Contact	Project Type	Project Description
GKN Aerospace	Andreas Anderson, Martin Thorden	Structured Light Scanning (SLS)	[redacted]
Flanagan Industries	Kevin Flanagan - President, John - Quality Mgr	Structured Light Scanning (SLS)	
Satellite Tool & Manufacturing	Jack Lukasik - President	Structured Light Scanning (SLS)	
Mallory Industries	Paul Murphy - President	Structured Light Scanning (SLS)	
New England Airfoil Products	Donal Budds, Glenn Pac	Structured Light Scanning (SLS)	
Phoenix Manufacturing		Structured Light Scanning (SLS)	
Ct Tool (Whitcraft, LLC)	Mark Blanchette - Quality Mgr, Colin Cooper, Nelson Gonzalez	Structured Light Scanning (SLS)	
EDAC	Glenn Lussier - VP Quality	Structured Light Scanning (SLS)	
Hubbel	Anthony Papa - Quality Mgr, Mike Esposito - Engrg	Structured Light Scanning (SLS)	
Alpha Q		Structured Light Scanning (SLS)	
Polamer		Structured Light Scanning (SLS)	
Birken Manufacturing	Gary Connelly, Gary Greenberg, Tom Cardone	Structured Light Scanning (SLS)	

			[redacted]
Reno Machine Company, Inc.	Mark Occhialini - President, Nelson Potter - Quality Mgr	Structured Light Scanning (SLS)	
Vista International Soundstik		Structured Light Scanning (SLS)	
Aerospace Alloys		Structured Light Scanning (SLS)	
Aero Gear, Inc.	Doug Rose	Structured Light Scanning (SLS)	
Barnes Aerospace		Structured Light Scanning (SLS)	
Gros-ite (EDAC)	Ben Adams	Structured Light Scanning (SLS)	
Habco Industries	Brian Montanari President & CEO	Structured Light Scanning (SLS)	

Status	Project Lead	Follow Up/Notes
ITC & Supplier Complete	CCAT	[redacted]
ITC Complete - Awaiting supplier conclusions	CCAT	
ITC Complete - Awaiting supplier conclusions	CCAT	
Active	CCAT	
Active	CCAT	
Active	CCAT	
Investigating	CCAT	
Investigating	CCAT	
Investigating	CCAT	
Investigating	CCAT	
Investigating	CCAT	
Investigating	CCAT	

Investigating	CCAT	[redacted]
Investigating	CCAT	
Not interested	CCAT	
Not interested	CCAT	
Not interested	CCAT	
Not interested	CCAT	
Not interested	CCAT	

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Suppl er Name	Supplier Point-of-Contact	Project Type	Project Reportat on	Status	Project Lead	Fo low Up/Notes
Debu ng House Inc.	Stephen Cy - Qual ty Mg	Equ pment Recommendat on and Eng nee ng Se v ces	[redacted]	Completed	D ape	[redacted]
GKN Ae ospace	Ma t n Tho den - P es dent,	P ocess Imp ovement, Equ pment Recommendat on and Eng nee ng Se v ces	[redacted]	Implemented	D ape	[redacted]
Habco Indust es	B an Montana P es dent & CEO	P ocess Imp ovement and Equ pment Recommendat on	[redacted]	Completed	D ape	[redacted]
Jonal Labo ato es, Inc.	Ma c Nemeth - P es dent	P ocess Imp ovement and Equ pment Recommendat on	[redacted]	Implemented	D ape	[redacted]
Adm E Mach ne	Al Pa low	P ocess Imp ovement	[redacted]	Inact ve	D ape	[redacted]
Avalon Advanced Technolog es & Repa Inc.	V no F ant n - P es dent, Jeff ey Kelly Qual ty Mg	P ocess Imp ovement	[redacted]	Inact ve	D ape	[redacted]
CAM G oup LLC		Equ pment Recommendat on	[redacted]	Inact ve	D ape	[redacted]
Flanagan Indust es (EDAC)	DECD to def ne	Equ pment Recommendat on	[redacted]	Inact ve	D ape	[redacted]
Pola Co po at on	Andy Kowalsk - P es dent, Tyson Szewczyk - Qual ty Mg		[redacted]	W thd awn	D ape	[redacted]

From: Molina-Rios, Carmen
Sent time: 03/21/2016 08:22:04 AM
To: Tong, Kun PW <Kun.Tong@pw.utc.com>
Cc: Brindley, William J PW <William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>; Gutierrez, Beatriz; Russo, Deborah
Subject: RE: [External] DECD Equipment Purchase - Task 5

Good morning Kun,

Thank you for confirming and your recommendation.

Regards,

Carmen

Sent from my Windows Phone

From: Tong, Kun PW
Sent: 3/18/2016 6:10 PM
To: Molina-Rios, Carmen
Cc: Brindley, William J PW; DRESCHER, JOSEPH D PW; Gutierrez, Beatriz; Russo, Deborah
Subject: Re: [External] DECD Equipment Purchase - Task 5

Carmen,

Yes, that is the sensor. I would recommend a robotic automation system with it if funding allows. Thanks

Kun

Sent from my iPhone

On Mar 18, 2016, at 3:24 PM, Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov> wrote:

> <image001.jpg>
> Good Afternoon Everyone,
>
> Please see attached the spec for the ATOS Triple Scan 16M. Please confirm for us that this is the system utilized by PW as the Blue Light production system that has been qualified.
>
> Thank you again for your time and helping us understand they equipment/technology better.
>
> Regards,
>
> Carmen
>
> ---
>
> **From:** Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
> **Sent:** Tuesday, March 15, 2016 4:41 PM
> **To:** 'Brindley, William J PW' <William.Brindley@pw.utc.com>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Wittstein, Bryan E. <bwittstein@draper.com>; Russo, Deborah <Deborah.Russo@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov>; Holmes, Steven M. <sholmes@draper.com>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>; Tong, Kun PW <Kun.Tong@pw.utc.com>; 'Don Balducci' <dbalducci@ccat.us>
> **Cc:** 'Tom Maloney' <tmaloney@ccat.us>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Subject:** DECD Equipment Purchase - Task 5
>
> Good Afternoon Everyone,
>
> Thank you again for your time this afternoon. It was extremely helpful to have everyone's perspective. As we

discussed, Draper Labs will provide DECD with the spec and cost for the GOM Atos Triple Scan equipment. Once we receive that I will be sure to send out an email to the group to confirm that we heard you right and we are all on the same page prior to DECD acquiring the equipment.

Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860.270.8234
Fax: 860.707.1809
Email: Carmen.Molinarios@ct.gov

Please consider the environment before printing
<image002.png>
Follow DECD <image003.gif>

Notice: This email and any attachments may contain proprietary (Draper non-public) and/or export-controlled information of Draper. If you are not the intended recipient of this email, please immediately notify the sender by replying to this email and immediately destroy all copies of this email.

<GOM Atos Triple Scan Recommendation.pptx>

From: Molina-Rios, Carmen
Sent time: 04/05/2016 03:53:27 PM
To: Tong, Kun PW <Kun.Tong@pw.utc.com>
Cc: DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>; Brindley, William J PW <William.Brindley@pw.utc.com>; Gutierrez, Beatriz; Fernandez, Barbara; Russo, Deborah
Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Kun,

Thank you so much for your time on this and offering to answer any of our questions.

Regards,

Carmen

-----Original Message-----

From: Tong, Kun PW [mailto:Kun.Tong@pw.utc.com]

Sent: Tuesday, April 05, 2016 3:29 PM

To: Molina-Rios, Carmen

Cc: DRESCHER, JOSEPH D PW; Brindley, William J PW; Gutierrez, Beatriz; Fernandez, Barbara; Russo, Deborah

Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

Yes. The GOM Scanbox and triple scan sensor is what PW is using and recommending. For a fully automated system, we usually also purchase the plus box (integrated photogrammetry system) so reference frames (which carries reference dots to help aligning images from different angle) can be qualified automatically. Depends on the size of the part and feature to be inspected, the lens set used can be 170mm, 320mm or 560mm. If you have any other question, please feel free to contact me.

Best regards,

Kun

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Friday, April 01, 2016 12:07 PM

To: Tong, Kun PW

Cc: DRESCHER, JOSEPH D PW; Brindley, William J PW; Gutierrez, Beatriz; Fernandez, Barbara; Russo, Deborah

Subject: FW: [External] DECD Equipment Purchase - Task 5

Hi Kun,

Please see Draper's findings on the ATOS Triple Scan 16M and GOM ScanBox 5120. Draper is recommending the GOM Scanbox 5120. What are your thoughts on this and is it similar to what PW is using?

Thank you for your time on this. I appreciate your help.

Carmen

-----Original Message-----

From: Holmes, Steven M. [mailto:sholmes@draper.com]

Sent: Thursday, March 24, 2016 4:02 PM

To: Molina-Rios, Carmen; Wittstein, Bryan E.

Cc: Serna, Frank J.

Subject: RE: [External] DECD Equipment Purchase - Task 5

Carmen,

Bryan has investigated three automation systems which can be used in conjunction with the ATOS Triple Scan 16M. The attached slides summarize his findings. If we had to make a recommendation it would be the GOM ScanBox 5120; however it is somewhat more expensive than the other options. Commonality with P&W could influence our soft recommendation; however we do not know what P&W is using.

Let us know if you'd like any additional information.

Thanks

Steve

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Monday, March 21, 2016 8:57 AM

To: Wittstein, Bryan E. <bwittstein@draper.com>; Holmes, Steven M. <sholmes@draper.com>

Subject: FW: [External] DECD Equipment Purchase - Task 5

Bryan,

Do you have the spec and cost to the robotic automation system Kun is referring to? Can you please send it to me?

Thank you.

Carmen

Sent from my Windows Phone

From: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>

Sent: 3/21/2016 8:22 AM

To: Tong, Kun PW<mailto:Kun.Tong@pw.utc.com>

Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>

Subject: RE: [External] DECD Equipment Purchase - Task 5

Good morning Kun,

Thank you for confirming and your recommendation.

Regards,

Carmen

Sent from my Windows Phone

From: Tong, Kun PW<mailto:Kun.Tong@pw.utc.com>

Sent: 3/18/2016 6:10 PM

To: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>

Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>

Subject: Re: [External] DECD Equipment Purchase - Task 5

Carmen,

Yes, that is the sensor. I would recommend a robotic automation system with it if funding allows. Thanks

Kun

Sent from my iPhone

On Mar 18, 2016, at 3:24 PM, Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov<mailto:Carmen.MolinaRios@ct.gov>> wrote:

<image001.jpg>

Good Afternoon Everyone,

Please see attached the spec for the ATOS Triple Scan 16M. Please confirm for us that this is the system utilized by PW as the Blue Light production system that has been qualified.

Thank you again for your time and helping us understand they equipment/technology better.

Regards,

Carmen

_____

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Tuesday, March 15, 2016 4:41 PM

To: 'Brindley, William J PW' <William.Brindley@pw.utc.com<mailto:William.Brindley@pw.utc.com>>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov<mailto:Beatriz.Gutierrez@ct.gov>>; Wittstein, Bryan E. <bwittstein@draper.com<mailto:bwittstein@draper.com>>; Russo, Deborah <Deborah.Russo@ct.gov<mailto:Deborah.Russo@ct.gov>>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov<mailto:Mayra.S.Holbrook@ct.gov>>; Holmes, Steven M. <sholmes@draper.com<mailto:sholmes@draper.com>>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com<mailto:joseph.drescher@pw.utc.com>>; Tong, Kun PW <Kun.Tong@pw.utc.com<mailto:Kun.Tong@pw.utc.com>>; 'Don Balducci' <dbalducci@ccat.us<mailto:dbalducci@ccat.us>>

Cc: 'Tom Maloney' <tmaloney@ccat.us<mailto:tmaloney@ccat.us>>; Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>

Subject: DECD Equipment Purchase - Task 5

Good Afternoon Everyone,

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Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios

Dept. of Economic and Community Dev.

505 Hudson Street

Hartford, CT 06106

Tel: 860.270.8234

Fax: 860.707.1809

Email: Carmen.Molinarios@ct.gov<mailto:Carmen.Molinarios@ct.gov>

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<http://www.facebook.com/pages/DECD/188972734470153>

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<GOM Atos Triple Scan Recommendation.pptx> _____

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From:	Holmes, Steven M. <sholmes@draper.com>
Sent time:	03/24/2016 04:01:53 PM
To:	Molina-Rios, Carmen; Wittstein, Bryan E. <bwittstein@draper.com>
Cc:	Serna, Frank J. <fserna@draper.com>
Subject:	RE: [External] DECD Equipment Purchase - Task 5
Attachments:	ATOS Automated Inspection Systems.pptx

Carmen,

Bryan has investigated three automation systems which can be used in conjunction with the ATOS Triple Scan 16M. The attached slides summarize his findings. If we had to make a recommendation it would be the GOM ScanBox 5120; however it is somewhat more expensive than the other options. Commonality with P&W could influence our soft recommendation; however we do not know what P&W is using.

Let us know if you'd like any additional information.

Thanks

Steve

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Monday, March 21, 2016 8:57 AM

To: Wittstein, Bryan E. <bwittstein@draper.com>; Holmes, Steven M. <sholmes@draper.com>

Subject: FW: [External] DECD Equipment Purchase - Task 5

Bryan,

Do you have the spec and cost to the robotic automation system Kun is referring to? Can you please send it to me?

Thank you.

Carmen

Sent from my Windows Phone

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Carmen Molina-Rios

Dept. of Economic and Community Dev.

505 Hudson Street

Hartford, CT 06106

Tel: 860.270.8234

Fax: 860.707.1809

Email: Carmen.Molinarios@ct.gov<mailto:Carmen.Molinarios@ct.gov>

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<http://www.facebook.com/pages/DECD/188972734470153>

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DRAPER

Automated Inspection Systems for ATOS Triple Scan 16M

GOM ScanBox 5120

Space requirements (W x L x H)	3.30 m x 3.30 m x 2.70 m
Max. part size	Up to 2 m
Max. part weight	Up to 500 kg
Automated axes	7
Robot controller	Integrated
Master controller	Integrated
Viewing windows	8
Entry	sliding door with safety locks
Opening width	1.40 m
Floor mounting or fixing	Not Required
Loading	Manual, transport cart, pallet truck
Price	$171,250.00
Total price: (includes ATOS Triple Scan 16M, automated system and all accessories)	$383,865.00



- Fully automated “Plug & Play” inspection center designed for the ATOS Blue Light system
- Utilizes FANUC M-20iA industrial robot with 7 axis of automated movement
- Capable of performing fully automated inspection on parts up to 2 meters in diameter and up to 500 kg

Capture 3D MC-XL

Space requirements (W x L x H)	2.40 m x 1.60 m x 2.85 m
Max. part size	.60 m x .60 m x .70 m
Max. part weight	Up to 217 kg
Automated axes	6
Robot controller	Integrated
Master controller	Integrated
Viewing windows	Transparent Enclosure
Entry	Enclosure w/sliding door
Opening width	1.20 m
Floor mounting or fixing	Not Required/Portable
Loading	Manual
Price	$113,000.00
Total price: (includes ATOS Triple Scan 16M, automated system and all accessories)	$325,615.00



- Fully automated custom inspection center designed by Capture 3D specifically for ATOS Blue Light system
- Comes with transparent enclosure (not shown above)
- 6 axis of automated movement capable of measuring parts up to .60 m in diameter and up to 217 kg
- Comparable to GOM ScanBox 5120 in all areas except for max part size and 1 less automated axis of movement

Custom Automated Inspection Cell

Space requirements (W x L x H)	N/A
Max. part size	.60 m x .60 m x .70 m
Max. part weight	Up to 500 kg
Automated axes	7
Robot controller	Requires development/integration
Master controller	Requires development/integration
Viewing windows	N/A
Entry	N/A
Opening width	N/A
Floor mounting or fixing	Must be fixtured to floor
Loading	Manual
Price	$77,585 + Integration Costs
Total price: (includes ATOS Triple Scan 16M, Fanuc M20iA and Single Axis Rotary Platform)	$290,200 + Integration Costs





- Cost of individual components is less than ScanBox or MC-XL, however, it does not include peripheral equipment or development/integration costs
  - Application specific peripherals + programming + integration costs can range from $50k – 70k
  - Includes controllers, teach pendants, enclosures, software etc.
- Quoted equipment (Fanuc M20iA) is the same industrial robot used in the GOM ScanBox 5120

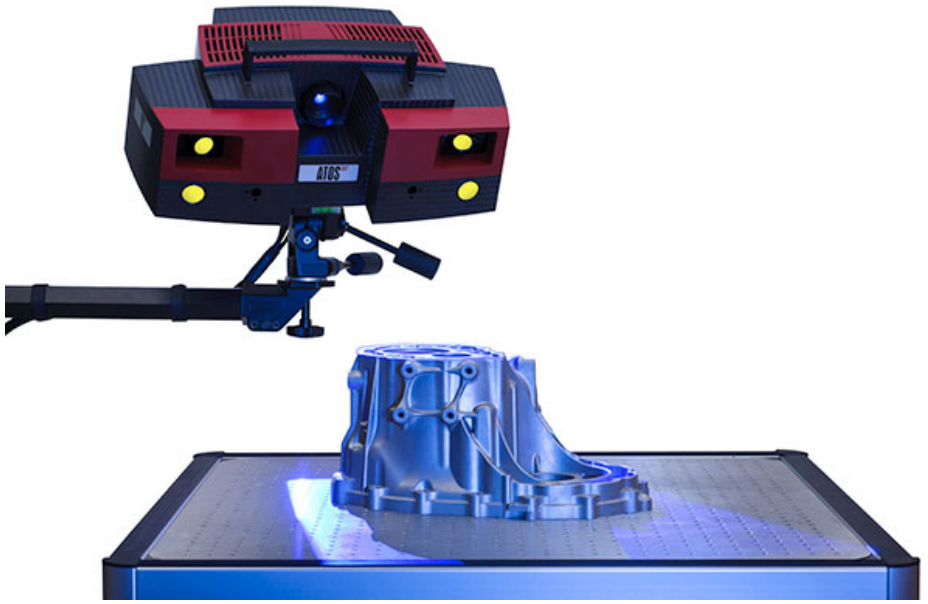
DRAPER

Recommendation for Blue Light 3D Mapping System

GOM Atos Triple Scan 16M



Field of View	(170mm x 130mm) - (810mm x 610mm)
Depth of Field	440mm - 800mm
Point Cloud Spacing	.03mm - .16mm
Point Cloud Accuracy	.0127 mm - .02 mm
Convert to STL	yes
Exposure Time	.5 s - 6 s
Mounting	Tripod/Industrial Robot
Weight	12.7 kg
Software	ATOS Professional
Operating Environment	5 - 40 °C
D&B Supplier Eval. Risk Rating	2
Price	$200k
Comments	Optional GOM Touch Probe for individual point measurements.



- High accuracy system with the option of using GOM Touch probe for individual point measurement
  - This can be used to measure inclusions that can't be mapped with structured light
- Consistent with existing qualified measurement systems for key aerospace manufacturers

From: Tong, Kun PW <Kun.Tong@pw.utc.com>
Sent time: 03/18/2016 06:10:20 PM
To: Molina-Rios, Carmen
Cc: Brindley, William J PW <William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>; Gutierrez, Beatriz; Russo, Deborah
Subject: Re: [External] DECD Equipment Purchase - Task 5
Attachments: image001.jpg image002.png image003.gif

Carmen,

Yes, that is the sensor. I would recommend a robotic automation system with it if funding allows. Thanks

Kun

Sent from my iPhone

On Mar 18, 2016, at 3:24 PM, Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov> wrote:

> <image001.jpg>
> Good Afternoon Everyone,
>
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> Regards,
>
> Carmen
>
> ---
>
> **From:** Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
> **Sent:** Tuesday, March 15, 2016 4:41 PM
> **To:** 'Brindley, William J PW' <William.Brindley@pw.utc.com>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Wittstein, Bryan E. <bwittstein@draper.com>; Russo, Deborah <Deborah.Russo@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov>; Holmes, Steven M. <sholmes@draper.com>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>; Tong, Kun PW <Kun.Tong@pw.utc.com>; 'Don Balducci' <dbalducci@ccat.us>
> **Cc:** 'Tom Maloney' <tmaloney@ccat.us>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Subject:** DECD Equipment Purchase - Task 5
>
> Good Afternoon Everyone,
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>
> Thank you again for your support of DECD and the OEA Grant.
>
> Carmen
>
> Carmen Molina-Rios
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford, CT 06106
> Tel: 860.270.8234
> Fax: 860.707.1809

Email: Carmen.Molinarios@ct.gov

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<GOM Atos Triple Scan Recommendation.pptx>

From:	Russo, Deborah
Sent time:	05/11/2016 11:06:36 AM
To:	Molina-Rios, Carmen
Subject:	RE: [External] DECD Equipment Purchase - Task 5

So what now?

Deborah Russo, CD Specialist
Department of Economic and Community Development
Office of Business and Industry Development
505 Hudson Street
Hartford, CT 06106
Phone: (860) 270-8223
Fax: (860) 707-1809
E-mail: deborah.russo@ct.gov

Connecticut
still revolutionary

From: Molina-Rios, Carmen
Sent: Wednesday, May 11, 2016 10:40 AM
To: Russo, Deborah
Subject: FW: [External] DECD Equipment Purchase - Task 5

See Don's and Tom's emails.

Sent from my Windows Phone

From: Tom Maloney
Sent: ý4/ý21/ý2016 1:49 PM
To: 'Fernandez, Barbara'
Cc: Molina-Rios, Carmen; Don Balducci
Subject: RE: [External] DECD Equipment Purchase - Task 5

21-Apr-2016

Dear Barbara,

CCAT has reviewed the DECD supplier survey results, the information prepared by Draper, and have had a brief discussion with Pratt&Whitney regarding the different GOM ATOS blue light systems. We support the consensus that the GOM ATOS ScanBox with Triple Scan 16M is the appropriate selection as this will demonstrate the technology for the supply chain. We believe that the ScanBox model 5108 is best for use within the ITC, not model 5120. These models represent the same technology and are just different physical size - the 5108 model will satisfy vast majority of part sizes of interest.

DECD received a quotation for the ScanBox model 5120. Physical size and weight of that model may create implementation challenges for some manufacturers and possibly at the Innovation Technology Center space at CCAT. We recommend the ScanBox model 5108. Model 5108 is smaller than model 5120 but the 5108 will serve most needs of the supply chain and would be more affordable than the model 5120. Model 5108 would serve the technology demonstration purposes for Pratt&Whitney and their suppliers just as well as model 5120. CCAT is confident that the ITC room can be modified (if needed) to accommodate model 5108. A quotation for the model 5108 will be required.

In Summary, the GOM Atos Triple Scan 16M with the 5108 ScanBox would serve us best for the ITC.

Thank you,
Tom

Dr. Thomas M. Maloney
Chief Technology Officer
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street, Suite 106
East Hartford, CT 06108
Phone: 860.282.4936 (x-436)

E-Mail: tmaloney@ccat.us

From: Fernandez, Barbara [mailto:Barbara.Fernandez@ct.gov]
Sent: Wednesday, April 20, 2016 12:33 PM
To: Tom Maloney
Cc: Molina-Rios, Carmen
Subject: RE: [External] DECD Equipment Purchase - Task 5

Thank you Tom. I will be traveling starting on Friday and want to sign the equipment requisition by tomorrow. I appreciate your prompt response.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

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still revolutionary
Follow DECD

From: Tom Maloney [mailto:tmaloney@ccat.us]
Sent: Wednesday, April 20, 2016 12:24 PM
To: Fernandez, Barbara
Subject: RE: [External] DECD Equipment Purchase - Task 5

Hello Barbara-
I will indeed reply Barbara. Getting our final thoughts together.
Thank you,
Tom

From: Fernandez, Barbara [mailto:Barbara.Fernandez@ct.gov]
Sent: Wednesday, April 20, 2016 9:57 AM
To: Tom Maloney
Subject: FW: [External] DECD Equipment Purchase - Task 5

Tom- Since Don is out please respond to my request. Thanks

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

Please consider the environment before printing
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still revolutionary
Follow DECD

From: Don Balducci [mailto:dbalducci@ccat.us]
Sent: Wednesday, April 20, 2016 9:56 AM
To: Fernandez, Barbara
Subject: Automatic reply: [External] DECD Equipment Purchase - Task 5

Out of the office until 4/21 If you want to speak with someone immediately please call Mirek Popielarczyk at extension 138 or Direct dial 860.282.4238 and he will be able to direct your call. Thank You Don

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Hi Carmen,

We did not research/quote any robotic automation systems specific to the Atos Triple Scan, but I will reach out to my contact at GOM today to see what they recommend. I will get back with more details after this conversation. Typically, however, these sensors can be mounted on any standard industrial robot. We could utilize the same robotic system that P&W currently uses, or Draper can perform some research to determine what would be the best fit for the ITC. Thanks!

Bryan E. Wittstein

Draper Laboratory | 555 Technology Square

Cambridge, MA 02139

Phone: 617-258-1519

Email: bwittstein@draper.com

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From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Tuesday, March 15, 2016 4:41 PM

To: 'Brindley, William J PW' <William.Brindley@pw.utc.com<mailto:William.Brindley@pw.utc.com>>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov<mailto:Beatriz.Gutierrez@ct.gov>>; Wittstein, Bryan E. <bwittstein@draper.com<mailto:bwittstein@draper.com>>; Russo, Deborah <Deborah.Russo@ct.gov<mailto:Deborah.Russo@ct.gov>>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov<mailto:Mayra.S.Holbrook@ct.gov>>; Holmes, Steven M. <sholmes@draper.com<mailto:sholmes@draper.com>>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com<mailto:joseph.drescher@pw.utc.com>>; Tong, Kun PW <Kun.Tong@pw.utc.com<mailto:Kun.Tong@pw.utc.com>>; 'Don Balducci' <dbalducci@ccat.us<mailto:dbalducci@ccat.us>>

Cc: 'Tom Maloney' <tmaloney@ccat.us<mailto:tmaloney@ccat.us>>; Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>

Subject: DECD Equipment Purchase - Task 5

Good Afternoon Everyone,

Thank you again for your time this afternoon. It was extremely helpful to have everyones perspective. As we discussed, Draper Labs will provide DECD with the spec and cost for the GOM Atos Triple Scan equipment. Once we receive that I will be sure to send out an email to the group to confirm that we heard you right and we are all on the same page prior to DECD acquiring the equipment.

Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios

Dept. of Economic and Community Dev.

505 Hudson Street

Hartford, CT 06106

Tel: 860.270.8234

Fax: 860.707.1809

Email: Carmen.Molinarios@ct.gov<mailto:Carmen.Molinarios@ct.gov>

Please consider the environment before printing <image002.png> Follow DECD <image003.gif>
<http://www.facebook.com/pages/DECD/188972734470153>

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<GOM Atos Triple Scan Recommendation.pptx>

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_____

From:	Wittstein, Bryan E. <bwittstein@draper.com>
Sent time:	03/21/2016 01:41:26 PM
To:	Molina-Rios, Carmen
Subject:	RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

Would it be possible for Draper to contact Kun directly? I was hoping to compare the robotic automation system that P&W already has with what GOM recommends. Thanks!

Bryan E. Wittstein

Draper Laboratory | 555 Technology Square

Cambridge, MA 02139

Phone: 617-258-1519

Email: bwittstein@draper.com

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Monday, March 21, 2016 8:57 AM

To: Wittstein, Bryan E. <bwittstein@draper.com>; Holmes, Steven M. <sholmes@draper.com>

Subject: FW: [External] DECD Equipment Purchase - Task 5

Bryan,

Do you have the spec and cost to the robotic automation system Kun is referring to? Can you please send it to me?

Thank you.

Carmen

Sent from my Windows Phone

From: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>

Sent: 3/21/2016 8:22 AM

To: Tong, Kun PW<mailto:Kun.Tong@pw.utc.com>

Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>

Subject: RE: [External] DECD Equipment Purchase - Task 5

Good morning Kun,

Thank you for confirming and your recommendation.

Regards,

Carmen

Sent from my Windows Phone

From: Tong, Kun PW<mailto:Kun.Tong@pw.utc.com>

Sent: 3/18/2016 6:10 PM

To: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>

Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>

Subject: Re: [External] DECD Equipment Purchase - Task 5

Carmen,

Yes, that is the sensor. I would recommend a robotic automation system with it if funding allows. Thanks

Kun

Sent from my iPhone

On Mar 18, 2016, at 3:24 PM, Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov<mailto:Carmen.MolinaRios@ct.gov>> wrote:

<image001.jpg>

Good Afternoon Everyone,

Please see attached the spec for the ATOS Triple Scan 16M. Please confirm for us that this is the system utilized by PW as the Blue Light production system that has been qualified.

Thank you again for your time and helping us understand they equipment/technology better.

Regards,

Carmen

_____

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Tuesday, March 15, 2016 4:41 PM

To: 'Brindley, William J PW' <William.Brindley@pw.utc.com<mailto:William.Brindley@pw.utc.com>>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov<mailto:Beatriz.Gutierrez@ct.gov>>; Wittstein, Bryan E. <bwittstein@draper.com<mailto:bwittstein@draper.com>>; Russo, Deborah <Deborah.Russo@ct.gov<mailto:Deborah.Russo@ct.gov>>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov<mailto:Mayra.S.Holbrook@ct.gov>>; Holmes, Steven M. <sholmes@draper.com<mailto:sholmes@draper.com>>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com<mailto:joseph.drescher@pw.utc.com>>; Tong, Kun PW <Kun.Tong@pw.utc.com<mailto:Kun.Tong@pw.utc.com>>; 'Don Balducci' <dbalducci@ccat.us<mailto:dbalducci@ccat.us>>

Cc: 'Tom Maloney' <tmaloney@ccat.us<mailto:tmaloney@ccat.us>>; Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>

Subject: DECD Equipment Purchase - Task 5

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Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios

Dept. of Economic and Community Dev.

505 Hudson Street

Hartford, CT 06106

Tel: 860.270.8234

Fax: 860.707.1809

Email: Carmen.Molinarios@ct.gov<mailto:Carmen.Molinarios@ct.gov>

Please consider the environment before printing <image002.png> Follow DECD <image003.gif>
<http://www.facebook.com/pages/DECD/188972734470153>

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<GOM Atos Triple Scan Recommendation.pptx>

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From:	Fernandez, Barbara
Sent time:	03/21/2016 01:59:37 PM
To:	Molina-Rios, Carmen
Subject:	RE: [External] DECD Equipment Purchase - Task 5

No, you must be on the call. He does not have the right skills yet and I don't want to clean up any misunderstandings with Pratt.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

Please consider the environment before printing
Connecticut
still revolutionary
Follow DECD

From: Molina-Rios, Carmen
Sent: Monday, March 21, 2016 1:55 PM
To: Fernandez, Barbara
Subject: FW: [External] DECD Equipment Purchase - Task 5

Please see Bryan's email below. What do you think?

Sent from my Windows Phone

From: Wittstein, Bryan E.
Sent: 3/21/2016 1:42 PM
To: Molina-Rios, Carmen
Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

Would it be possible for Draper to contact Kun directly? I was hoping to compare the robotic automation system that P&W already has with what GOM recommends. Thanks!

Bryan E. Wittstein
Draper Laboratory | 555 Technology Square
Cambridge, MA 02139
Phone: 617-258-1519
Email: bwittstein@draper.com

-----Original Message-----
From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Monday, March 21, 2016 8:57 AM
To: Wittstein, Bryan E. <bwittstein@draper.com>; Holmes, Steven M. <sholmes@draper.com>
Subject: FW: [External] DECD Equipment Purchase - Task 5

Bryan,

Do you have the spec and cost to the robotic automation system Kun is referring to? Can you please send it to me?

Thank you.

Carmen

Sent from my Windows Phone

_____
From: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>

Sent: 3/21/2016 8:22 AM
To: Tong, Kun PW<mailto:Kun.Tong@pw.utc.com>
Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>
Subject: RE: [External] DECD Equipment Purchase - Task 5

Good morning Kun,

Thank you for confirming and your recommendation.

Regards,

Carmen

Sent from my Windows Phone

_____

From: Tong, Kun PW<mailto:Kun.Tong@pw.utc.com>
Sent: 3/18/2016 6:10 PM
To: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>
Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>
Subject: Re: [External] DECD Equipment Purchase - Task 5

Carmen,

Yes, that is the sensor. I would recommend a robotic automation system with it if funding allows. Thanks

Kun

Sent from my iPhone

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<image001.jpg>
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Please see attached the spec for the ATOS Triple Scan 16M. Please confirm for us that this is the system utilized by PW as the Blue Light production system that has been qualified.

Thank you again for your time and helping us understand they equipment/technology better.

Regards,

Carmen

_____

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, March 15, 2016 4:41 PM
To: 'Brindley, William J PW' <William.Brindley@pw.utc.com<mailto:William.Brindley@pw.utc.com>>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov<mailto:Beatriz.Gutierrez@ct.gov>>; Wittstein, Bryan E. <bwittstein@draper.com<mailto:bwittstein@draper.com>>; Russo, Deborah <Deborah.Russo@ct.gov<mailto:Deborah.Russo@ct.gov>>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov<mailto:Mayra.S.Holbrook@ct.gov>>; Holmes, Steven M. <sholmes@draper.com<mailto:sholmes@draper.com>>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com<mailto:joseph.drescher@pw.utc.com>>; Tong, Kun PW <Kun.Tong@pw.utc.com<mailto:Kun.Tong@pw.utc.com>>; 'Don Balducci' <dbalducci@ccat.us<mailto:dbalducci@ccat.us>>
Cc: 'Tom Maloney' <tmaloney@ccat.us<mailto:tmaloney@ccat.us>>; Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>
Subject: DECD Equipment Purchase - Task 5

Good Afternoon Everyone,

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Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860.270.8234
Fax: 860.707.1809
Email: Carmen.Molinarios@ct.gov<mailto:Carmen.Molinarios@ct.gov>

Please consider the environment before printing <image002.png> Follow DECD <image003.gif>
<http://www.facebook.com/pages/DECD/188972734470153>

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<GOM Atos Triple Scan Recommendation.pptx>

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From:	Wittstein, Bryan E. <bwittstein@draper.com>
Sent time:	04/07/2016 03:35:14 PM
To:	Molina-Rios, Carmen
Cc:	Gutierrez, Beatriz; Fernandez, Barbara; Holmes, Steven M. <sholmes@draper.com>; Serna, Frank J. <fserna@draper.com>
Subject:	RE: [External] DECD Equipment Purchase - Task 5
Attachments:	Capture3D Quote for ATOS 16M with PlusBox and ScanBox.pdf GOM Atos Triple Scan Recommendation.pptx

Hi Carmen,

Attached is the quote that we received from Capture3D which includes the ATOS Triple Scan 16M, the PlusBox, the ScanBox 5120 and all 3 lens sets. This should include everything that Kun Tong mentioned in his email. Also attached is an updated recommendation for the whole system. Please let me know if there is any other information that I could provide that would be helpful for making a final decision. Thanks!

Bryan E. Wittstein

Draper Laboratory | 555 Technology Square

Cambridge, MA 02139

Phone: 617-258-1519

Email: bwittstein@draper.com

-----Original Message-----

From: Wittstein, Bryan E.

Sent: Wednesday, April 06, 2016 3:54 PM

To: 'Molina-Rios, Carmen' <Carmen.MolinaRios@ct.gov>; Serna, Frank J. <fserna@draper.com>; Holmes, Steven M. <sholmes@draper.com>

Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>

Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

The recommendation and price quote that Draper provided did not include the PlusBox. I have already reached out to Capture3D and I will provide updated quotes as soon as I receive them. This will include prices for the ATOS scanner itself, the ScanBox 5120 , the PlusBox and all required peripherals.

Bryan E. Wittstein

Draper Laboratory | 555 Technology Square Cambridge, MA 02139

Phone: 617-258-1519

Email: bwittstein@draper.com

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Tuesday, April 05, 2016 3:56 PM

To: Serna, Frank J. <fserna@draper.com>; Holmes, Steven M. <sholmes@draper.com>; Wittstein, Bryan E. <bwittstein@draper.com>

Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>

Subject: FW: [External] DECD Equipment Purchase - Task 5

Team,

Can you confirm for me that your recommendation included everything recommended by Kun Tong? I wasn't sure about the plus box is appropriate for the part sizes that would be brought to CCAT.

Thank you,

Carmen

-----Original Message-----

From: Tong, Kun PW [mailto:Kun.Tong@pw.utc.com]

Sent: Tuesday, April 05, 2016 3:29 PM

To: Molina-Rios, Carmen

Cc: DRESCHER, JOSEPH D PW; Brindley, William J PW; Gutierrez, Beatriz; Fernandez, Barbara; Russo, Deborah

Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

Yes. The GOM Scanbox and triple scan sensor is what PW is using and recommending. For a fully automated system, we usually also purchase the plus box (integrated photogrammetry system) so reference frames (which carries reference dots to help aligning images from different angle) can be qualified automatically. Depends on the size of the part and feature to be inspected, the lens set used can be 170mm, 320mm or 560mm. If you have any other question, please feel free to contact me.

Best regards,

Kun

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Capture 3D, Inc.
Headquarters
3505 Cadillac Avenue, F1
Costa Mesa, CA 92626 USA
(714) 546-7278

Quotation

Date	Quote #
4/7/2016	14946

Prepared by:
Capture 3D, Incorporated
Phone: (714) 546-7278
Fax: (714) 546-7279
accounting@capture3d.com

Prepared For:

Draper Laboratory
Bryan Wittstein
555 Technology Square
Cambridge, MA 02139

Terms	Valid Until	Shipping
30% down bal due on receipt	5/7/2016	8-10 Weeks

Item	Description	Qty.	PRICE	Total
ATOS 16M Plus ...	ATOS Triple Scan 16M with Integrated 29M photogrammetry unit on a 400 frame with one measuring volume: 320mm x 240mm x 240mm packed in a stable travel case for optimal protection and easy traveling. ATOS Triple Scan a structured blue-light 3D Scanner that operates as 3 sensors- in- 1 featuring two 16 mega pixel measuring cameras providing 16-million PPS (points per scan) packed in a durable travel case. Each high quality optical camera works independently capturing accurate 3D scans from left, right, and both cameras with high-resolution feature detail. Each scan is automatically aligned within the software. The ATOS Professional Live XL Software offers complete rapid 3D scanning, mesh editing, and parametric inspection. Other features include: Industry specific inspection features, creating measurement plans, templates, teaching by doing, trend analysis, GD &T, online tracking, reverse projection, photogrammetry functionality, and more. Integrated third camera for photgrammetry includes lens, carbon fiber scale bar set with clamps and additional XL photogrammetry software. Packed in a stable travel case for optimal protection and easy traveling. Complete Industrial Dell 7810.L Rackmount PC with 24'' TFT monitor mounted in a 19” Rack with wheels for easy transportation and protection: 2x Intel 3.1GHz DecaCore, 64 GB RAM, Nvidia Quadro K4200, 512GB SSD + 2 x 2TB HDD (Raid), keyboard, mouse, Windows 7 (64 bit) operating system, and external USB system backup hard drive ASABA enhanced stand system, 2.1, 2.5 or 3.0 meter height, 1M or 1.7M horizontal arm, articulating head and additional counterbalance weight. Accessories: set of tools, thermometer, one (1) touch probe, uncoded targets, training manuals and ATOS acceptance test report for each measuring volume. One year all inclusive hardware and software support Three days of on-site training by a Capture 3D Engineer.	1	259,360.00	259,360.00
TS-16-170mm	170mm X 130mm X 130mm Measuring Volume with calibration artifact for an ATOS 16M Triple Scan	1	6,300.00	6,300.00
TS-16-560mm	535mm X 400mm X 320mm Measuring Volume with calibration artifact for an ATOS 16M Triple Scan	1	6,300.00	6,300.00
			TOTAL	

Capture 3D, Inc.
Headquarters
3505 Cadillac Avenue, F1
Costa Mesa, CA 92626 USA
(714) 546-7278

Quotation

Date	Quote #
4/7/2016	14946

Prepared by:
Capture 3D, Incorporated
Phone: (714) 546-7278
Fax: (714) 546-7279
accounting@capture3d.com

Prepared For:

Draper Laboratory
Bryan Wittstein
555 Technology Square
Cambridge, MA 02139

Terms	Valid Until	Shipping
30% down bal due on receipt	5/7/2016	8-10 Weeks

Item	Description	Qty.	PRICE	Total
ScanBox 5120	ScanBox 5120 - Robot Module with robot and controller, ScanBox Master Controller, customization of robot cable guiding and connectors for ATOS ScanBox, sensor adapter and carrier for robot module—For use with ATOS II-TS, ATOS III-TS or ATOS III-TS+ only. - Rotation Table Module with additional driver and motor for 7th axis, rotation table, D800 rotation table plate and carrier for rotation table module. -Robot on 400mm height extension - Machine housing - Software for robot safety and communication. - Documentation with CE Certification and declaration of conformity, documentation of the mechanical and electrical components, operating manual and definition of the Virtual Measuring Room (VMR) -VMR Software - 12 months of warranty - Assembly and initial operation of ATOS ScanBox: 4 man days. - VMR offline and online training: 2 man days. Dimensions: 3300mm width x 3300mm depth x 2700mm height, for components with max diameter of 2000mm and max height of 2000mm.	1	171,250.00	171,250.00
ATOS II/III-TS C...	ATOS II/III - TS 10M sensor cable. sensor head to PC.	1	1,625.00	1,625.00
			TOTAL	**$444,835.00**

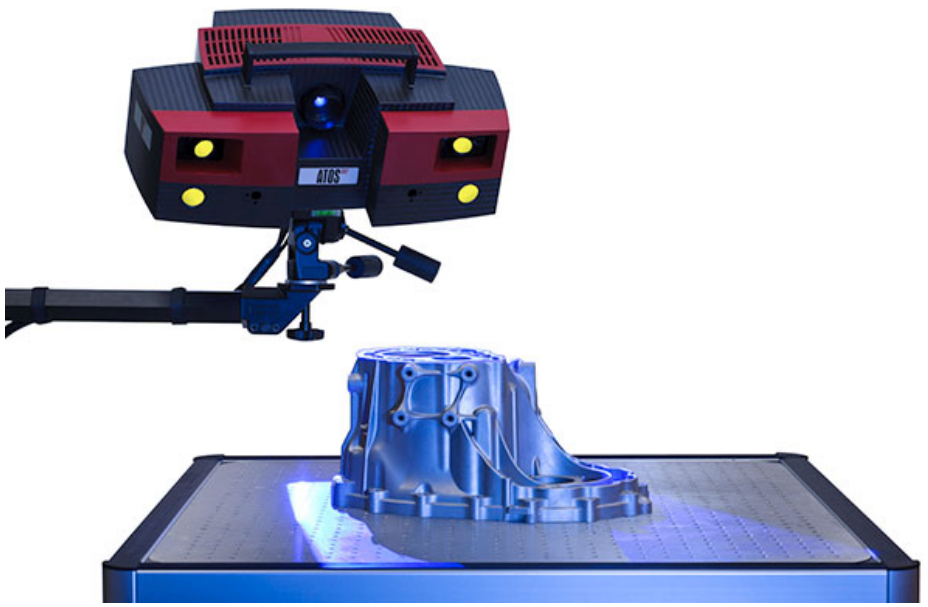
DRAPER

Recommendation for Blue Light 3D Mapping System

GOM Atos Triple Scan 16M with PlusBox



Field of View	(130mm x 130mm) - (400mm x 320mm)
Depth of Field	170mm - 535mm
Point Cloud Spacing	.03mm - .16mm
Point Cloud Accuracy	.0127 mm - .02 mm
Convert to STL	yes
Exposure Time	.5 s - 6 s
Mounting	Industrial Robot (Fanuc M20iA)
Weight	12.7 kg
Software	ATOS Professional
Operating Environment	5 - 40 °C
D&B Supplier Eval. Risk Rating	2
Price	$273,585.00
Comments	Optional GOM Touch Probe for individual point measurements.



- High accuracy system with the option of using GOM Touch probe for individual point measurement
  - This can be used to measure inclusions that can't be mapped with structured light
- Additional PlusBox allows for automated qualification of reference frames
- Consistent with existing qualified measurement systems for key aerospace manufacturers

GOM ScanBox 5120

Space requirements (W x L x H)	3.30 m x 3.30 m x 2.70 m
Max. part size	Up to 2 m
Max. part weight	Up to 500 kg
Automated axes	7
Robot controller	Integrated
Master controller	Integrated
Viewing windows	8
Entry	sliding door with safety locks
Opening width	1.40 m
Floor mounting or fixing	Not Required
Loading	Manual, transport cart, pallet truck
Price	$171,250.00
Total price: (includes ATOS Triple Scan 16M, automated system and all accessories)	$444,835.00



- Fully automated “Plug & Play” inspection center designed for the ATOS Blue Light system
- Utilizes FANUC M-20iA industrial robot with 7 axis of automated movement
- Capable of performing fully automated inspection on parts up to 2 meters in diameter and up to 500 kg

From: Tong, Kun PW <Kun.Tong@pw.utc.com>
Sent time: 04/05/2016 03:28:45 PM
To: Molina-Rios, Carmen
Cc: DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>; Brindley, William J PW <William.Brindley@pw.utc.com>; Gutierrez, Beatriz; Fernandez, Barbara; Russo, Deborah
Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

Yes. The GOM Scanbox and triple scan sensor is what PW is using and recommending. For a fully automated system, we usually also purchase the plus box (integrated photogrammetry system) so reference frames (which carries reference dots to help aligning images from different angle) can be qualified automatically. Depends on the size of the part and feature to be inspected, the lens set used can be 170mm, 320mm or 560mm. If you have any other question, please feel free to contact me.

Best regards,

Kun

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Friday, April 01, 2016 12:07 PM

To: Tong, Kun PW

Cc: DRESCHER, JOSEPH D PW; Brindley, William J PW; Gutierrez, Beatriz; Fernandez, Barbara; Russo, Deborah

Subject: FW: [External] DECD Equipment Purchase - Task 5

Hi Kun,

Please see Draper's findings on the ATOS Triple Scan 16M and GOM ScanBox 5120. Draper is recommending the GOM Scanbox 5120. What are your thoughts on this and is it similar to what PW is using?

Thank you for your time on this. I appreciate your help.

Carmen

-----Original Message-----

From: Holmes, Steven M. [mailto:sholmes@draper.com]

Sent: Thursday, March 24, 2016 4:02 PM

To: Molina-Rios, Carmen; Wittstein, Bryan E.

Cc: Serna, Frank J.

Subject: RE: [External] DECD Equipment Purchase - Task 5

Carmen,

Bryan has investigated three automation systems which can be used in conjunction with the ATOS Triple Scan 16M. The attached slides summarize his findings. If we had to make a recommendation it would be the GOM ScanBox 5120; however it is somewhat more expensive than the other options. Commonality with P&W could influence our soft recommendation; however we do not know what P&W is using.

Let us know if you'd like any additional information.

Thanks

Steve

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Monday, March 21, 2016 8:57 AM

To: Wittstein, Bryan E. <bwittstein@draper.com>; Holmes, Steven M. <sholmes@draper.com>

Subject: FW: [External] DECD Equipment Purchase - Task 5

Bryan,

Do you have the spec and cost to the robotic automation system Kun is referring to? Can you please send it to me?

Thank you.

Carmen

Sent from my Windows Phone

_____

From: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>

Sent: 3/21/2016 8:22 AM

To: Tong, Kun PW<mailto:Kun.Tong@pw.utc.com>

Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>

Subject: RE: [External] DECD Equipment Purchase - Task 5

Good morning Kun,

Thank you for confirming and your recommendation.

Regards,

Carmen

Sent from my Windows Phone

_____

From: Tong, Kun PW<mailto:Kun.Tong@pw.utc.com>

Sent: 3/18/2016 6:10 PM

To: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>

Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>

Subject: Re: [External] DECD Equipment Purchase - Task 5

Carmen,

Yes, that is the sensor. I would recommend a robotic automation system with it if funding allows. Thanks

Kun

Sent from my iPhone

On Mar 18, 2016, at 3:24 PM, Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov<mailto:Carmen.MolinaRios@ct.gov>> wrote:

<image001.jpg>

Good Afternoon Everyone,

Please see attached the spec for the ATOS Triple Scan 16M. Please confirm for us that this is the system utilized by PW as the Blue Light production system that has been qualified.

Thank you again for your time and helping us understand they equipment/technology better.

Regards,

Carmen

_____

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Tuesday, March 15, 2016 4:41 PM

To: 'Brindley, William J PW' <William.Brindley@pw.utc.com<mailto:William.Brindley@pw.utc.com>>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov<mailto:Beatriz.Gutierrez@ct.gov>>; Wittstein, Bryan E. <bwittstein@draper.com<mailto:bwittstein@draper.com>>; Russo, Deborah <Deborah.Russo@ct.gov<mailto:Deborah.Russo@ct.gov>>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov<mailto:Mayra.S.Holbrook@ct.gov>>; Holmes, Steven M. <sholmes@draper.com<mailto:sholmes@draper.com>>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com<mailto:joseph.drescher@pw.utc.com>>; Tong, Kun PW <Kun.Tong@pw.utc.com<mailto:Kun.Tong@pw.utc.com>>; 'Don Balducci' <dbalducci@ccat.us<mailto:dbalducci@ccat.us>>

Cc: 'Tom Maloney' <tmaloney@ccat.us<mailto:tmaloney@ccat.us>>; Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>

Subject: DECD Equipment Purchase - Task 5

Good Afternoon Everyone,

Thank you again for your time this afternoon. It was extremely helpful to have everyones perspective. As we discussed, Draper Labs will provide DECD with the spec and cost for the GOM Atos Triple Scan equipment. Once we receive that I will be sure to send out an email to the group to confirm that we heard you right and we are all on the same page prior to DECD acquiring the equipment.

Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios

Dept. of Economic and Community Dev.

505 Hudson Street

Hartford, CT 06106

Tel: 860.270.8234

Fax: 860.707.1809

Email: Carmen.Molinarios@ct.gov<mailto:Carmen.Molinarios@ct.gov>

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<http://www.facebook.com/pages/DECD/188972734470153>

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<GOM Atos Triple Scan Recommendation.pptx> _____

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_____

From:	Don Balducci <dbalducci@ccat.us>
Sent time:	05/11/2016 10:03:57 AM
To:	Molina-Rios, Carmen
Cc:	Wittstein, Bryan E. <bwittstein@draper.com>; Serna, Frank J. <fserna@draper.com>; Russo, Deborah; Wayne Sumple <wsumple@ccat.us>; Tom Maloney <tmaloney@ccat.us>; Mirek Popielarczyk <mpopielarczyk@ccat.us>; Adnan Foysol <afoysol@ccat.us>
Subject:	RE: [External] DECD Equipment Purchase - Task 5
Attachments:	RE: [External] DECD Equipment Purchase - Task 5

Carmen,
Please see tom Maloney's attached email. I will be out for a few days and wanted to follow up because Wayne is out too. I hope this helps.
Thanks,
Don

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, May 11, 2016 9:51 AM
To: Don Balducci
Cc: Wittstein, Bryan E.; 'Serna, Frank J.'; Russo, Deborah
Subject: RE: [External] DECD Equipment Purchase - Task 5

Don,

We already ordered the ScanBox 5120. Please confirm that it will fit in the allocated space at CCAT ITC. Based on CCAT's previous emails, we believed this piece of equipment could be accommodated in the space.

Thanks.

Carmen

From: Don Balducci [mailto:dbalducci@ccat.us]
Sent: Wednesday, May 11, 2016 9:42 AM
To: Wittstein, Bryan E. <bwittstein@draper.com>; Ron Seaman <ron.seaman@capture3d.com>
Cc: Holmes, Steven M. <sholmes@draper.com>; Mirek Popielarczyk <mpopielarczyk@ccat.us>; Adnan Foysol <afoysol@ccat.us>; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>; Wayne Sumple <wsumple@ccat.us>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Russo, Deborah <Deborah.Russo@ct.gov>
Subject: RE: [External] DECD Equipment Purchase - Task 5

All,
Wayne is out and wanted to communicate/confirm that the **Scan Box #5108** has a smaller "foot print" and would be the best fit for the allocated space at CCAT ITC. We realize the height is the same on both units.
Thanks,
Don

From: Wittstein, Bryan E. [mailto:bwittstein@draper.com]
Sent: Monday, May 09, 2016 2:06 PM
To: Ron Seaman
Cc: Holmes, Steven M.; Don Balducci; Mirek Popielarczyk; Adnan Foysol; Molina-Rios, Carmen; Wayne Sumple; Fernandez, Barbara; Russo, Deborah
Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Ron,

Attached is the Vendor Profile and W-9 Form to be filled out by Capture3D. Once this is complete, it should be returned to Deborah Russo at the Conn. DECD.

Deborah, if you have any further questions regarding the purchase details of the blue light system please contact Ron directly. For any technical questions regarding the equipment recommendation please contact me. Thanks!

Bryan E. Wittstein
Draper Laboratory | 555 Technology Square
Cambridge, MA 02139
Phone: 617-258-1519
Email: bwittstein@draper.com

From: Russo, Deborah [mailto:Deborah.Russo@ct.gov]
Sent: Monday, May 09, 2016 1:43 PM
To: Wittstein, Bryan E. <bwittstein@draper.com>
Cc: Holmes, Steven M. <sholmes@draper.com>; Don Balducci <dbalducci@ccat.us>; Mirek Popielarczyk <mpopielarczyk@ccat.us>; Adnan Foysol <afoysol@ccat.us>; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>; Wayne Sumple <wsumple@ccat.us>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Subject: RE: [External] DECD Equipment Purchase - Task 5

Good afternoon Bryan:

In order for the DECD to begin the process of purchasing the blue light I will need an Agency Vendor form and a w-9 completed by 3D. I have attached them for you to send on to the company to complete and return to me complete and signed.

Thanks
Deb

Deborah Russo, CD Specialist
Department of Economic and Community Development
Office of Business and Industry Development
505 Hudson Street
Hartford, CT 06106
Phone: (860) 270-8223
Fax: (860) 707-1809
E-mail: deborah.russo@ct.gov

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From: Wittstein, Bryan E. [mailto:bwittstein@draper.com]
Sent: Wednesday, April 27, 2016 11:39 AM
To: Wayne Sumple
Cc: Holmes, Steven M.; Don Balducci; Mirek Popielarczyk; Adnan Foysol; Molina-Rios, Carmen; Russo, Deborah
Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Wayne,

Attached are the two quotes for a fully automated system with either the 5108 or 5120 ScanBox. Please note that if there is concern about the height of the unit, both the 5108 and 5120 are the same height. Only the footprint of the 5108 is smaller.

Bryan E. Wittstein
Draper Laboratory | 555 Technology Square
Cambridge, MA 02139
Phone: 617-258-1519
Email: bwittstein@draper.com

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Knight, Crystal

From: Tom Maloney <tmaloney@ccat.us>
Sent: Thursday, April 21, 2016 1:50 PM
To: Fernandez, Barbara
Cc: Molina-Rios, Carmen; Don Balducci
Subject: RE: [External] DECD Equipment Purchase - Task 5

21-Apr-2016

Dear Barbara,

CCAT has reviewed the DECD supplier survey results, the information prepared by Draper, and have had a brief discussion with Pratt&Whitney regarding the different GOM ATOS blue light systems. We support the consensus that the GOM ATOS ScanBox with Triple Scan 16M is the appropriate selection as this will demonstrate the technology for the supply chain. We believe that the ScanBox model 5108 is best for use within the ITC, not model 5120. These models represent the same technology and are just different physical size - the 5108 model will satisfy vast majority of part sizes of interest.

DECD received a quotation for the ScanBox model 5120. Physical size and weight of that model may create implementation challenges for some manufacturers and possibly at the Innovation Technology Center space at CCAT. We recommend the ScanBox model 5108. Model 5108 is smaller than model 5120 but the 5108 will serve most needs of the supply chain and would be more affordable than the model 5120. Model 5108 would serve the technology demonstration purposes for Pratt&Whitney and their suppliers just as well as model 5120. CCAT is confident that the ITC room can be modified (if needed) to accommodate model 5108. A quotation for the model 5108 will be required.

In Summary, the GOM Atos Triple Scan 16M with the 5108 ScanBox would serve us best for the ITC.

Thank you,
Tom

Dr. Thomas M. Maloney
Chief Technology Officer
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street, Suite 106
East Hartford, CT 06108
Phone: 860.282.4936 (x-436)
E-Mail: tmaloney@ccat.us

From: Fernandez, Barbara [mailto:Barbara.Fernandez@ct.gov]
Sent: Wednesday, April 20, 2016 12:33 PM
To: Tom Maloney
Cc: Molina-Rios, Carmen
Subject: RE: [External] DECD Equipment Purchase - Task 5

Thank you Tom. I will be traveling starting on Friday and want to sign the equipment requisition by tomorrow. I appreciate your prompt response.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025

Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

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From: Tom Maloney [mailto:tmaloney@ccat.us]
Sent: Wednesday, April 20, 2016 12:24 PM
To: Fernandez, Barbara
Subject: RE: [External] DECD Equipment Purchase - Task 5

Hello Barbara-
I will indeed reply Barbara. Getting our final thoughts together.
Thank you,
Tom

From: Fernandez, Barbara [mailto:Barbara.Fernandez@ct.gov]
Sent: Wednesday, April 20, 2016 9:57 AM
To: Tom Maloney
Subject: FW: [External] DECD Equipment Purchase - Task 5

Tom- Since Don is out please respond to my request. Thanks

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

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Follow DECD

From: Don Balducci [mailto:dbalducci@ccat.us]
Sent: Wednesday, April 20, 2016 9:56 AM
To: Fernandez, Barbara
Subject: Automatic reply: [External] DECD Equipment Purchase - Task 5

Out of the office until 4/21 If you want to speak with someone immediately please call Mirek Popielarczyk at extension 138 or Direct dial 860.282.4238 and he will be able to direct your call. Thank You Don

---

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From:	Molina-Rios, Carmen
Sent time:	03/21/2016 02:04:07 PM
To:	Fernandez, Barbara
Subject:	RE: [External] DECD Equipment Purchase - Task 5

Okay I will schedule the call.

Sent from my Windows Phone

From: Fernandez, Barbara
Sent: 3/21/2016 1:59 PM
To: Molina-Rios, Carmen
Subject: RE: [External] DECD Equipment Purchase - Task 5

No, you must be on the call. He does not have the right skills yet and I don't want to clean up any misunderstandings with Pratt.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

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From: Molina-Rios, Carmen
Sent: Monday, March 21, 2016 1:55 PM
To: Fernandez, Barbara
Subject: FW: [External] DECD Equipment Purchase - Task 5

Please see Bryan's email below. What do you think?

Sent from my Windows Phone

From: Wittstein, Bryan E.
Sent: 3/21/2016 1:42 PM
To: Molina-Rios, Carmen
Subject: RE: [External] DECD Equipment Purchase - Task 5

Hi Carmen,

Would it be possible for Draper to contact Kun directly? I was hoping to compare the robotic automation system that P&W already has with what GOM recommends. Thanks!

Bryan E. Wittstein
Draper Laboratory | 555 Technology Square
Cambridge, MA 02139
Phone: 617-258-1519
Email: bwittstein@draper.com

-----Original Message-----
From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Monday, March 21, 2016 8:57 AM
To: Wittstein, Bryan E. <bwittstein@draper.com>; Holmes, Steven M. <sholmes@draper.com>
Subject: FW: [External] DECD Equipment Purchase - Task 5

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Thank you.

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Sent from my Windows Phone

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Sent: 3/21/2016 8:22 AM
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Cc: Brindley, William J PW<mailto:William.Brindley@pw.utc.com>; DRESCHER, JOSEPH D PW<mailto:joseph.drescher@pw.utc.com>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>; Russo, Deborah<mailto:Deborah.Russo@ct.gov>
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Good morning Kun,

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Regards,

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Sent from my Windows Phone

_____

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To: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>
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Subject: Re: [External] DECD Equipment Purchase - Task 5

Carmen,

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Kun

Sent from my iPhone

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<image001.jpg>
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From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, March 15, 2016 4:41 PM
To: 'Brindley, William J PW' <William.Brindley@pw.utc.com<mailto:William.Brindley@pw.utc.com>>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov<mailto:Beatriz.Gutierrez@ct.gov>>; Wittstein, Bryan E. <bwittstein@draper.com<mailto:bwittstein@draper.com>>; Russo, Deborah <Deborah.Russo@ct.gov<mailto:Deborah.Russo@ct.gov>>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov<mailto:Mayra.S.Holbrook@ct.gov>>; Holmes, Steven M. <sholmes@draper.com<mailto:sholmes@draper.com>>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com<mailto:joseph.drescher@pw.utc.com>>; Tong, Kun PW <Kun.Tong@pw.utc.com<mailto:Kun.Tong@pw.utc.com>>; 'Don Balducci' <dbalducci@ccat.us<mailto:dbalducci@ccat.us>>
Cc: 'Tom Maloney' <tmaloney@ccat.us<mailto:tmaloney@ccat.us>>; Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>
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Carmen

Carmen Molina-Rios
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860.270.8234
Fax: 860.707.1809
Email: Carmen.Molinarios@ct.gov<mailto:Carmen.Molinarios@ct.gov>

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<http://www.facebook.com/pages/DECD/188972734470153>

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From:	Tom Maloney <tmaloney@ccat.us>
Sent time:	04/21/2016 01:49:41 PM
To:	Fernandez, Barbara
Cc:	Molina-Rios, Carmen; Don Balducci <dbalducci@ccat.us>
Subject:	RE: [External] DECD Equipment Purchase - Task 5

21-Apr-2016

Dear Barbara,

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Tom

Dr. Thomas M. Maloney
Chief Technology Officer
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street, Suite 106
East Hartford, CT 06108
Phone: 860.282.4936 (x-436)
E-Mail: tmaloney@ccat.us

From: Fernandez, Barbara [mailto:Barbara.Fernandez@ct.gov]
Sent: Wednesday, April 20, 2016 12:33 PM
To: Tom Maloney
Cc: Molina-Rios, Carmen
Subject: RE: [External] DECD Equipment Purchase - Task 5

Thank you Tom. I will be traveling starting on Friday and want to sign the equipment requisition by tomorrow. I appreciate your prompt response.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
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Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

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Sent: Wednesday, April 20, 2016 12:24 PM
To: Fernandez, Barbara
Subject: RE: [External] DECD Equipment Purchase - Task 5

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Sent: Wednesday, April 20, 2016 9:57 AM
To: Tom Maloney
Subject: FW: [External] DECD Equipment Purchase - Task 5

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Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

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From: Don Balducci [mailto:dbalducci@ccat.us]
Sent: Wednesday, April 20, 2016 9:56 AM
To: Fernandez, Barbara
Subject: Automatic reply: [External] DECD Equipment Purchase - Task 5

Out of the office until 4/21 If you want to speak with someone immediately please call Mirek Popielarczyk at extension 138 or Direct dial 860.282.4238 and he will be able to direct your call. Thank You Don

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For more information please visit http://www.mimecast.com

From:	Fernandez, Barbara
Sent time:	01/09/2017 12:43:55 PM
To:	Molina-Rios, Carmen
Subject:	RE: 1/6/17 RADE Task 5 Weekly Status

I need help reading the meaning of the report. Can we go over it quickly?

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

Please consider the environment before printing
Connecticut
still revolutionary
Follow DECD

From: Molina-Rios, Carmen
Sent: Friday, January 06, 2017 4:53 PM
To: Fernandez, Barbara
Subject: FW: 1/6/17 RADE Task 5 Weekly Status

Fyi

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, January 06, 2017 4:10 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'
Subject: 1/6/17 RADE Task 5 Weekly Status

Carmen,

1) CCAT has secured participation of three suppliers utilizing the ITC's GOM ATOS scanner. They are Flanagan, GKN and New England Airfoil Products (NEAP). Representatives of NEAP were at the ITC on 1/5/17 to witness the scanning capability on one of their airfoils.

2) The final draft of the Marketing Brochure (See attachment) has been approved and will be distributed to suppliers shortly and followed with phone, e-mail and face-to-face meetings to explain the benefits of utilizing the ITC for SLS technology demonstration projects.

3) A sustainability plan is being prepared for utilization of the ITC facility beyond the March 2017 Task 5 termination.

4) The Sub-Tasks, Deliverables and Metrics and a status of supplier participation in Task 5 have been revised to include the above activities (See attachment).

We can discuss these and other items at our scheduled 10:30 Conference call on Monday 1/9/17.

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 01/09/2017 11:38:53 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: RE: 1/6/17 RADE Task 5 Weekly Status

Carmen,

Yes, I will re-initiate the conference call at 1.

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Monday, January 09, 2017 10:08 AM
To: Devins, Kenneth
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'
Subject: RE: 1/6/17 RADE Task 5 Weekly Status

Hi Ken,

I'm running late from an appointment. Can we move our call to 1:00? Sorry for the inconvenience.

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, January 6, 2017 4:10 PM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; 'Vesce, Jennifer D Belcan Engineering Group, Inc' <Jennifer.Vesce@pw.utc.com>
Subject: 1/6/17 RADE Task 5 Weekly Status

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175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen
Sent time: 01/09/2017 10:07:35 AM
To: Devins, Kenneth <kdevins@belcan.com>
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
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Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From:	Molina-Rios, Carmen
Sent time:	01/09/2017 12:26:12 PM
To:	Devins, Kenneth <kdevins@belcan.com>
Subject:	RE: 1/6/17 RADE Task 5 Weekly Status

Thank you. Let's talk then.

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Monday, January 09, 2017 11:39 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'
Subject: RE: 1/6/17 RADE Task 5 Weekly Status

Carmen,
Yes, I will re-initiate the conference call at 1.
Ken

Belcan Engineering
175 Addison Rd.
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Office Phone 860-683-5367
Cell Phone 203-584-8958

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Sent: Monday, January 09, 2017 10:08 AM
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Subject: RE: 1/6/17 RADE Task 5 Weekly Status

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Sent: Friday, January 6, 2017 4:10 PM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; 'Vesce, Jennifer D Belcan Engineering Group, Inc' <Jennifer.Vesce@pw.utc.com>
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175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 02/14/2017 10:36:55 AM
To: Molina-Rios, Carmen
Subject: RE: 2-10-17 RADE Task 5 Weekly Status

We can use the conference call number.

[redacted]

Access Code[redacted]

Belcan Engineering

175 Addison Rd.

Windsor, Ct 06095

Office Phone 860-683-5367

Cell Phone 203-584-8958

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Tuesday, February 14, 2017 10:35 AM

To: Devins, Kenneth

Subject: RE: 2-10-17 RADE Task 5 Weekly Status

Sounds good. What number do I call you on?

Sent from my Windows Phone

_____

From: Devins, Kenneth<mailto:kdevins@belcan.com>

Sent: 2/14/2017 10:34 AM

To: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>

Subject: RE: 2-10-17 RADE Task 5 Weekly Status

How is 1PM?

Belcan Engineering

175 Addison Rd.

Windsor, Ct 06095

Office Phone 860-683-5367

Cell Phone 203-584-8958

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Tuesday, February 14, 2017 10:33 AM

To: Devins, Kenneth

Subject: RE: 2-10-17 RADE Task 5 Weekly Status

I'm in a mtg that will go to 11:30. Hows this afternoon? Sorry 10:30 won't work.

Sent from my Windows Phone

_____

From: Devins, Kenneth<mailto:kdevins@belcan.com>

Sent: 2/13/2017 1:33 PM

To: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>

Subject: RE: 2-10-17 RADE Task 5 Weekly Status

Carmen,

Tomorrow at 10:30 is good.

Ken

-----Original Message-----

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

Sent: Monday, February 13, 2017 10:20 AM

To: Devins, Kenneth

Subject: RE: 2-10-17 RADE Task 5 Weekly Status

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Hope you weathered this stir ok.

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From: Devins, Kenneth<mailto:kdevins@belcan.com>

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Cc: Forsyth, Jean M.<mailto:jforsyth@belcan.com>; 'Vesce, Jennifer D Belcan Engineering Group, Inc'<mailto:Jennifer.Vesce@pw.utc.com>

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Regards,

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Office Phone 860-683-5367

Cell Phone 203-584-8958

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	02/13/2017 01:33:37 PM
To:	Molina-Rios, Carmen
Subject:	RE: 2-10-17 RADE Task 5 Weekly Status

Carmen,

Tomorrow at 10:30 is good.

Ken

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From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]

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To: Devins, Kenneth

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Cc: Forsyth, Jean M.<mailto:jforsyth@belcan.com>; 'Vesce, Jennifer D Belcan Engineering Group, Inc'<mailto:Jennifer.Vesce@pw.utc.com>

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Cell Phone 203-584-8958

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	02/14/2017 10:34:12 AM
To:	Molina-Rios, Carmen
Subject:	RE: 2-10-17 RADE Task 5 Weekly Status

How is 1PM?

Belcan Engineering

175 Addison Rd.

Windsor, Ct 06095

Office Phone 860-683-5367

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Sent: 2/13/2017 1:33 PM

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Sent: 2/12/2017 9:19 PM

To: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>

Cc: Forsyth, Jean M.<mailto:jforsyth@belcan.com>; 'Vesce, Jennifer D Belcan Engineering Group, Inc'<mailto:Jennifer.Vesce@pw.utc.com>

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From:	Molina-Rios, Carmen
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Subject: RE: 2-10-17 RADE Task 5 Weekly Status

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Cell Phone 203-584-8958

From: Molina-Rios, Carmen
Sent time: 02/14/2017 10:35:06 AM
To: Devins, Kenneth <kdevins@belcan.com>
Subject: RE: 2-10-17 RADE Task 5 Weekly Status

Sounds good. What number do I call you on?

Sent from my Windows Phone

From: Devins, Kenneth
Sent: 2/14/2017 10:34 AM
To: Molina-Rios, Carmen
Subject: RE: 2-10-17 RADE Task 5 Weekly Status

How is 1PM?

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

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Carmen,

1) With guidance from Belcan CCAT prepared a revised ITC Sustainment Proposal including cost and floorspace details (See attachment).

2) Members of the Belcan supplier team met to discuss options for technology insertion business models that can be sustained without state or federal financial support. The only alternative that we have seen to be successful is when large suppliers such as GKN or prime contractors such as PW, UTC or Lockheed Martin provide support and resources. A good example of this is the teaming of the non-profit CCAT with GKN in acquiring and operating the Zimmerman composite machining system. In this case there is a potential to gain support from GKN to enhance the effectiveness of this composite equipment at CCAT with onsite inspection capability with both the GOM ATOS and the proposed Computed Tomography x-ray scanner. These types of efforts are usually targeted toward support of a specific product application and reflect a synergy with the larger companies strategic business plan. In this regard PW is already working with their aerospace industry supplier base, but could benefit from utilizing CCAT and the ITC equipment as an additional resource.

3) No new projects have been added at CCAT or Draper. Progress on existing projects continues. Priorities have been established for the backlog at the ITC (See attachments).

4) David Hamzik has replaced Steve Holmes as the project manager at Draper. I have requested a comprehensive review of the Draper projects and their expected completion dates.

5) Belcan delivered the monthly progress report for January to DECD.

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	02/17/2017 03:46:13 PM
To:	Molina-Rios, Carmen
Subject:	RE: 2-17-17 RADE Task 5 Weekly Status

Carmen,

I would suggest 10:30Am on Tuesday for our conference call. I look forward to Marty Romitti as well.

On a different subject, please let me know if the additional information that I sent on sustainability at CCAT is acceptable.
If not, I would like to arrange a conference call with you, John Glidden and I to fill in the gaps.

Thanks,
Ken

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Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, February 17, 2017 3:33 PM
To: Devins, Kenneth
Cc: 'mromitti@crec.net'
Subject: RE: 2-17-17 RADE Task 5 Weekly Status

Hi Ken,

Thank you for the status report. With Monday being a holiday, please let me know what time would be good for us to talk on Tuesday.

Also, I wanted to let you know that the Center for Regional Economic Competitiveness (CREC) is performing a third party evaluation on the entire OEA RADE 2 grant. I've asked them to coordinate with you on the review and assessment of Task 5. Specifically, they will be in town on Friday, February 24th and meeting with CCAT, Draper and the DeBurring House as a case study for the work of Draper. Please plan on being part of the meeting; if you can. Marty Romitti of CREC will be contacting you directly. I also, asked that Marty if he had time to be on a call with us on Tuesday. Once we have a time confirmed, I will let him know so I can make the introductions and he can provide you the details of his visit.

Thanks,

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, February 17, 2017 3:25 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'
Subject: 2-17-17 RADE Task 5 Weekly Status

Carmen,

1) With guidance from Belcan CCAT delivered additional details to DECD specifying anticipated federal, state and other funding sources that may contribute to sustainment of ITC equipment at CCAT when and if Task 5 is discontinued (See attachment).

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From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	02/17/2017 04:52:24 PM
To:	Molina-Rios, Carmen
Subject:	RE: 2-17-17 RADE Task 5 Weekly Status

Carmen,
Since Marty will be participating would you set up the call?
Thanks,
Ken

Belcan Engineering
175 Addison Rd.
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Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, February 17, 2017 4:35 PM
To: Devins, Kenneth
Subject: RE: 2-17-17 RADE Task 5 Weekly Status

Ken,

Sounds good. I have Tuesday at 10:30 on my calendar. Will you set up the call in line or do you want me to?

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Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, February 17, 2017 3:33 PM
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Cc: 'mromitti@crec.net'
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Sent: Friday, February 17, 2017 3:25 PM
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From:	Molina-Rios, Carmen
Sent time:	02/17/2017 03:32:38 PM
To:	Devins, Kenneth <kdevins@belcan.com>
Cc:	mromitti@crec.net
Subject:	RE: 2-17-17 RADE Task 5 Weekly Status

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From:	Molina-Rios, Carmen
Sent time:	02/17/2017 04:59:48 PM
To:	Devins, Kenneth <kdevins@belcan.com>
Subject:	RE: 2-17-17 RADE Task 5 Weekly Status

Sure, Have a great weekend.

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, February 17, 2017 4:52 PM
To: Molina-Rios, Carmen
Subject: RE: 2-17-17 RADE Task 5 Weekly Status

Carmen,
Since Marty will be participating would you set up the call?
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To: Devins, Kenneth
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Sent: Friday, February 17, 2017 3:33 PM

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From:	Molina-Rios, Carmen
Sent time:	02/17/2017 04:35:25 PM
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Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen
Sent time: 04/24/2017 11:25:08 AM
To: Devins, Kenneth <kdevins@belcan.com>
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: RE: 4-26-17 RADE Task 5 Weekly Status

Hi Ken,

I got your message. I will review your report and let you know if I need any other information. As to the acquisition process for the equipment, I'm all set at this point. I've been dealing with Jason directly and asked that he provide me a breakdown of the costs. I will update after that piece of the process is complete.

Thank you for checking in.

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, April 21, 2017 3:37 PM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: 4-26-17 RADE Task 5 Weekly Status

Carmen,

1) Mallory Industries (Paul Murphy) is working to get their customer (Woodward) to accept Blue Light as an approved inspection methodology for quality acceptance.
2) CCAT/ITC has been in contact with 19 suppliers resulting in 6 active projects and 8 potential projects. Five suppliers have determined that the Blue Light technology is not applicable to their products at this time.
3) Draper is not planning to solicit additional suppliers beyond the current 4. Work continues to complete 11 projects with Habco, Deburring House, GKN and Jonal, and there is one potential additional project at Deburring House.
4) Lessons Learned from Draper –
   a) Provide budget flexibility to Draper based on their assessment of potential benefits, do not specify budget limits for each supplier or project,
   b) Initial outreach to suppliers should be from DECD/Belcan, not Draper, to allay fears of a hidden agenda from Draper.
5) Belcan participated in the final training session with CCAT and Capture 3D on the GOM ATOS on 4/20/17.
6) Belcan provided a letter from NSI to DECD verifying their adherence to 'sole source' criteria defined by DECD in support of the X5000 X-Ray Scanner acquisition purchase order (See Attachment).
7) Belcan with input from NSI and CCAT submitted a tentative schedule for delivery, installation and certification of the proposed NSI X5000 X-Ray scanner assuming a 5/15/17 purchase order approval (See Attachment).

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen
Sent time: 11/29/2016 11:00:02 AM
To: Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>; Wayne Sumple <wsumple@ccat.us>
Cc: Don Balducci <dbalducci@ccat.us>; Nasir Mannan <nmannan@ccat.us>; John Quitter <jquitter@ccat.us>; John Glidden <jglidden@ccat.us>; Elinor Hargreaves <ehargreaves@ccat.us>; Richmond, Michele; Fernandez, Barbara
Subject: RE: Capture 3D Outstanding Issues

Hi Wayne and Ken,

Based on the update, it looks like all items should be resolved and completed by December 7th. Please let me know on December 8th; if all is cleared up and its okay to pay.

Thank you.

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, November 29, 2016 10:55 AM
To: Molina-Rios, Carmen; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: Capture 3D Outstanding Issues

Carmen/Ken,

Status of GOM ATOS installation issues: Capture 3D payment should be withheld until all these are cleared up.

1. Photogrammetric Reference Frames don't fit – *problem has been fixed*
2. Glass window gasket damaged – *open, attempt to fix 11/30*
3. Training still needs to be done – *second day scheduled for 12/7*
4. *(New)* Relocate computer control system – *11/30*
5. *(New)* Install VMR for the 560 reference frame – *11/30*

Wayne

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 23, 2016 9:31 AM
To: Wayne Sumple; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: RE: ITC Procedures and Guidelines

Hi Wayne,

Thank you. I will take a look at them and get back to you with feedback. Also, has all the issue with repair of the equipment been resolved?

Thanks,

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, November 22, 2016 4:32 PM
To: Molina-Rios, Carmen; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: ITC Procedures and Guidelines

Carmen/Ken,

Here is the ITC Procedures and Guidelines document that CCAT will be following.

Wayne M. Sumple

Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

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For more information please visit http://www.mimecast.com

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	12/01/2016 03:41:20 PM
To:	Wayne Sumple <wsumple@ccat.us>; Molina-Rios, Carmen
Subject:	RE: Capture 3D Outstanding Issues

Carmen,

We rescheduled for 1PM.

Ken

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Thursday, December 01, 2016 12:38 PM
To: 'Molina-Rios, Carmen'
Cc: Devins, Kenneth
Subject: RE: Capture 3D Outstanding Issues

Ken is coming to CCAT tomorrow morning at 10am. Can you join us?

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Thursday, December 01, 2016 12:11 PM
To: Wayne Sumple
Cc: 'Ken Devins - Belcan (kdevins@belcan.com)'; Don Balducci; John Quitter
Subject: RE: Capture 3D Outstanding Issues

Thank you. I'm glad to seeing they are moving along with resolving the issues.

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Thursday, December 01, 2016 10:23 AM
To: Molina-Rios, Carmen
Cc: 'Ken Devins - Belcan (kdevins@belcan.com)'; Don Balducci; John Quitter
Subject: RE: Capture 3D Outstanding Issues

Carmen/Ken - latest update -

1. Photogrammetric Reference Frames don't fit – *problem has been fixed*
2. Glass window gasket damaged – *fixed*
3. Training still needs to be done – *second day scheduled for 12/7*
4. Relocate computer control system – *cables not long enough, scheduled to be fixed on 12/2*
5. Install VMR for the 560 reference frame – *done*

Ken – give me a call…

From: Wayne Sumple
Sent: Tuesday, November 29, 2016 11:08 AM
To: 'Molina-Rios, Carmen'
Cc: Ken Devins - Belcan (kdevins@belcan.com)
Subject: RE: Capture 3D Outstanding Issues

Will do.

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, November 29, 2016 11:00 AM
To: Wayne Sumple; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves; Richmond, Michele; Fernandez, Barbara
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Hi Wayne and Ken,

Based on the update, it looks like all items should be resolved and completed by December 7th. Please let me know on December 8th; if all is cleared up and its okay to pay.

Thank you.

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Wayne

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 23, 2016 9:31 AM
To: Wayne Sumple; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: RE: ITC Procedures and Guidelines

Hi Wayne,

Thank you. I will take a look at them and get back to you with feedback. Also, has all the issue with repair of the equipment been resolved?

Thanks,

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From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, November 22, 2016 4:32 PM
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Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: ITC Procedures and Guidelines

Carmen/Ken,

Here is the ITC Procedures and Guidelines document that CCAT will be following.

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

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From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	11/29/2016 01:11:23 PM
To:	Wayne Sumple <wsumple@ccat.us>; Molina-Rios, Carmen
Subject:	RE: Capture 3D Outstanding Issues

Wayne,

How does this effect the training schedule?

Ken

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, November 29, 2016 11:08 AM
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From: Molina-Rios, Carmen
Sent time: 12/01/2016 12:10:47 PM
To: Wayne Sumple <wsumple@ccat.us>
Cc: Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>; Don Balducci <dbalducci@ccat.us>; John Quitter <jquitter@ccat.us>
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From:	Molina-Rios, Carmen
Sent time:	12/01/2016 12:40:23 PM
To:	Wayne Sumple <wsumple@ccat.us>
Subject:	RE: Capture 3D Outstanding Issues

I would have like to be part of the meeting. However, I'm at an offsite meeting tomorrow until 11:30. Thank you for including me☺

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Thursday, December 01, 2016 12:38 PM
To: Molina-Rios, Carmen
Cc: Ken Devins - Belcan (kdevins@belcan.com)
Subject: RE: Capture 3D Outstanding Issues

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From: Wayne Sumple <wsumple@ccat.us>
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From: Wayne Sumple <wsumple@ccat.us>
Sent time: 12/01/2016 10:22:49 AM
To: Molina-Rios, Carmen
Cc: Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>; Don Balducci <dbalducci@ccat.us>; John Quitter <jquitter@ccat.us>
Subject: RE: Capture 3D Outstanding Issues

Carmen/Ken - latest update -

1. Photogrammetric Reference Frames don't fit – *problem has been fixed*
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From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	12/05/2016 08:09:39 AM
To:	Molina-Rios, Carmen
Cc:	Wayne Sumple <wsumple@ccat.us>
Subject:	RE: Capture 3D Outstanding Issues

Carmen,

Wayne and I met on Friday to plan the next steps to running projects on the GOM ATOS equipment.

The final training is scheduled for Wednesday, 12/7/16, at CCAT. Wayne has invited us to stop by on Wednesday to see the equipment in operation if you are available.

Wayne has identified 5 suppliers that are potential candidates for projects once the training is complete and the equipment is up and running.

I spoke with Steve Hoyt and Bryan Wittstein last Wednesday and they have 7 projects underway.

In terms of increasing the number of projects at both CCAT and Draper, there does not appear to be enough time between now and the March 2017 end of contract date to acquire and complete new projects with additional suppliers. Are there plans to extend contracts beyond March 2017?

Ken

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, December 02, 2016 11:21 AM
To: Devins, Kenneth; Wayne Sumple
Subject: RE: Capture 3D Outstanding Issues

Hi,

Thank you for letting me know. I still have a conflict so please just let me know the outcome of your meeting.

Have a great weekend.

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Thursday, December 01, 2016 3:41 PM
To: Wayne Sumple; Molina-Rios, Carmen
Subject: RE: Capture 3D Outstanding Issues

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We rescheduled for 1PM.
Ken

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Sent time:	12/02/2016 11:21:27 AM
To:	Devins, Kenneth <kdevins@belcan.com>; Wayne Sumple <wsumple@ccat.us>
Subject:	RE: Capture 3D Outstanding Issues

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From: Molina-Rios, Carmen
Sent time: 12/05/2016 10:01:04 AM
To: Devins, Kenneth <kdevins@belcan.com>
Cc: Wayne Sumple <wsumple@ccat.us>; Holmes, Steven M. <sholmes@draper.com>
Subject: RE: Capture 3D Outstanding Issues

Hi Ken,

I realize that we got a late start. I don't anticipate an extension with the DoD OEA contract so I ask that you push as much as you can to get the projects underway and introductions to companies. Below is the language within the proposal. Please review it with the team and let me know what has been completed, what is partially completed (give percentage) and what you believe will not be met.

Thanks,

Carmen

Task 5 – Manufacturing Innovation
Increase CT Companies' cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

Sub Tasks:
5.1 Hire technical coordinator
5.2 Acquire and/or lease machinery, equipment
5.3 Installation of machinery and equipment
5.4 Perform outreach to supply chain
5.5 Identify training needs
5.6 Deliver training (if/when appropriate)
5.7 Process Improvement project implementation
5.8 Analyze/report on manufacturing innovation

Deliverable:
- CT Innovation Technology Center is established, operational, and staffed
- Suppliers are aware of ITC and its capabilities
- Participating companies' staff trained on new processes and technologies
- Reporting on the effectiveness and best practices of manufacturing innovation methodologies and technologies at participating companies
- Manufacturing Technology Innovation Needs Statement

Metrics:
- A minimum of 20 supply chain companies participate
- A minimum of 10 projects implemented
- Available hours used on the equipment by suppliers
- Number of projects
- Equipment hours used
- Equipment ordered by suppliers
- Number of processes implementing by supplier in their facility

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Monday, December 05, 2016 8:10 AM
To: Molina-Rios, Carmen
Cc: Wayne Sumple

Subject: RE: Capture 3D Outstanding Issues

Carmen,

Wayne and I met on Friday to plan the next steps to running projects on the GOM ATOS equipment.

The final training is scheduled for Wednesday, 12/7/16, at CCAT. Wayne has invited us to stop by on Wednesday to see the equipment in operation if you are available.

Wayne has identified 5 suppliers that are potential candidates for projects once the training is complete and the equipment is up and running.

I spoke with Steve Hoyt and Bryan Wittstein last Wednesday and they have 7 projects underway.

In terms of increasing the number of projects at both CCAT and Draper, there does not appear to be enough time between now and the March 2017 end of contract date to acquire and complete new projects with additional suppliers. Are there plans to extend contracts beyond March 2017?

Ken

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, December 02, 2016 11:21 AM
To: Devins, Kenneth; Wayne Sumple
Subject: RE: Capture 3D Outstanding Issues

Hi,

Thank you for letting me know. I still have a conflict so please just let me know the outcome of your meeting.

Have a great weekend.

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Thursday, December 01, 2016 3:41 PM
To: Wayne Sumple; Molina-Rios, Carmen
Subject: RE: Capture 3D Outstanding Issues

Carmen,
We rescheduled for 1PM.
Ken

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Thursday, December 01, 2016 12:38 PM
To: 'Molina-Rios, Carmen'
Cc: Devins, Kenneth
Subject: RE: Capture 3D Outstanding Issues

Ken is coming to CCAT tomorrow morning at 10am. Can you join us?

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Thursday, December 01, 2016 12:11 PM
To: Wayne Sumple
Cc: 'Ken Devins - Belcan (kdevins@belcan.com)'; Don Balducci; John Quitter
Subject: RE: Capture 3D Outstanding Issues

Thank you. I'm glad to seeing they are moving along with resolving the issues.

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Thursday, December 01, 2016 10:23 AM
To: Molina-Rios, Carmen
Cc: 'Ken Devins - Belcan (kdevins@belcan.com)'; Don Balducci; John Quitter
Subject: RE: Capture 3D Outstanding Issues

Carmen/Ken - latest update -

1. Photogrammetric Reference Frames don't fit – *problem has been fixed*
2. Glass window gasket damaged – *fixed*
3. Training still needs to be done – *second day scheduled for 12/7*
4. Relocate computer control system – *cables not long enough, scheduled to be fixed on 12/2*
5. Install VMR for the 560 reference frame – *done*

Ken – give me a call…

From: Wayne Sumple
Sent: Tuesday, November 29, 2016 11:08 AM
To: 'Molina-Rios, Carmen'
Cc: Ken Devins - Belcan (kdevins@belcan.com)
Subject: RE: Capture 3D Outstanding Issues

Will do.

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, November 29, 2016 11:00 AM
To: Wayne Sumple; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves; Richmond, Michele; Fernandez, Barbara
Subject: RE: Capture 3D Outstanding Issues

Hi Wayne and Ken,

Based on the update, it looks like all items should be resolved and completed by December 7th. Please let me know on December 8th; if all is cleared up and its okay to pay.

Thank you.

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, November 29, 2016 10:55 AM
To: Molina-Rios, Carmen; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: Capture 3D Outstanding Issues

Carmen/Ken,

Status of GOM ATOS installation issues: Capture 3D payment should be withheld until all these are cleared up.

1. Photogrammetric Reference Frames don't fit – *problem has been fixed*
2. Glass window gasket damaged – *open, attempt to fix 11/30*
3. Training still needs to be done – *second day scheduled for 12/7*
4. *(New)* Relocate computer control system – *11/30*
5. *(New)* Install VMR for the 560 reference frame – *11/30*

Wayne

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 23, 2016 9:31 AM
To: Wayne Sumple; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: RE: ITC Procedures and Guidelines

Hi Wayne,

Thank you. I will take a look at them and get back to you with feedback. Also, has all the issue with repair of the equipment

been resolved?

Thanks,

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, November 22, 2016 4:32 PM
To: Molina-Rios, Carmen; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: ITC Procedures and Guidelines

Carmen/Ken,

Here is the ITC Procedures and Guidelines document that CCAT will be following.

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

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From:	Fernandez, Barbara
Sent time:	04/09/2017 04:12:47 PM
To:	Smith, Catherine H; Gutierrez, Beatriz
Cc:	Kollen, Bart
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

No I haven't, happy to do so. Agree this is really not our issue at all.

Sent from my Windows Phone

From: Smith, Catherine H
Sent: 4/9/2017 1:18 PM
To: Fernandez, Barbara; Gutierrez, Beatriz
Cc: Kollen, Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok can you set up time for us?

Sent from my Windows Phone

From: Gutierrez, Beatriz
Sent: 4/8/2017 9:14 AM
To: Fernandez, Barbara
Cc: Smith, Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

I think we should set some time with Catherine to get her direction on mex r steps before this escalates. Let's get Tracey to find some time.

B

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

From: Mark Bliek
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara
Cc: Smith, Catherine H; Gutierrez, Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs Fernandez, thanks for addressing my questions

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated CCAT administers the Manufacturing Innovation Fund Voucher Program for the state I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants Bolton Works, which received a grant in 2009 administered by CCAT, is an example

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business If I would consult with DECD before talking to

CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,

I received notice to vacate the building on March 6th 2017 Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture Needless to say we are past the point of reconciliation

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted A visit by you therefore would be appreciated I am available any time next week

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Dear Mr. Bliek- Thank you for your e-mail follow-up.
>
> 1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
>
> This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.
>
> 2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
>
> The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with Massachusetts.
>
> As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.
>
> Barbara Fernandez,Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford, CT 06106
> Tel: 860-270-8025
> Fax:860-707-1809
> E-mail: barbara.fernandez@ct.gov
>
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> Follow DECD
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Saturday, March 18, 2017 8:06 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Mrs Fernandez,
>
> This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017
>
> 1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs It is now my understanding that the equipment will be offered for sale, once the demonstration period ends At that time, Bolton Works would like to have the opportunity to bid on the equipment
>
> 2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works
>
> 3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT I made clear that my concerns are as much with CCAT as DECD However, I also made it clear that I am not looking at the current situation from a legal

perspective The DECD and CCAT might have the right to act as they did Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD

I would like to invite you to visit Bolton Works It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works com> wrote:

> Dear Ms Smith,
>
> I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.
>
> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
>
> In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.
>
> In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.
>
> Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.
>
> I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.
>
> Sincerely,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> **----------**
>
> Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the

turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

From:	Fernandez, Barbara
Sent time:	01/30/2018 09:25:12 AM
To:	Smith, Catherine H
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Being handled- at the end of the day he needs to settle his issues with CCAT.

From: Smith, Catherine H
Sent: Tuesday, January 30, 2018 8:52 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

Trust you are handling this, but happy to discuss if that would be helpful.

Catherine Smith

Commissioner
Department of Economic and Community Development
860-500-2310 (office); 860-801-4254 (cell)
450 Columbus Blvd., Suite 5, Hartford, CT 06103
Connecticut
still revolutionary
www.DECD.org
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From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Monday, January 29, 2018 12:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.

As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.

An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.

I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.

Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
450 Columbus Boulevard/South Tower,Suite 5
Hartford, CT 06103-1843
Tel: 860-500-2325
E-mail: barbara.fernandez@ct.gov
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See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, December 05, 2017 11:26 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
2011 Bolton Works acquires 2nd 3D scanner.
2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
2014 Bolton Works acquires 3rd 3D scanner
2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.
2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:
1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford, CT 06106
> Tel: 860-270-8025
> Fax: 860-707-1809
> E-mail: barbara.fernandez@ct.gov
> ΠΙ Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35
>
> The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready

My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above

* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered

* State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

Hi Barbara, we are still on for our meeting at 1.30pm today?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> ---
> From: Mark Bliek<mailto mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.
>
> I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.
>
> 4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.
>
> Looking forward to your reply,
>
> Regards,
>
> Mark Bliek - President
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118
>
> Phone (860) 646-3948<tel:(860)%20646-3948>
> Mobile (860) 995-3087<tel:(860)%20995-3087>
>
> Mark Bliek - President
>
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane

East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct gov<mailto:Barbara Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto mark.bliek@bolton-works.com<mailto mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost

every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Fernandez, Barbara
Sent time:	04/11/2017 09 09:46 AM
To:	Rooslund, Tracey; Holbrook, Mayra S
Cc:	Gutierrez, Beatriz
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Today at 12 works for me.

Sent from my Windows Phone

From: Rooslund Tracey
Sent: 4/11/2017 5:27 AM
To: Holbrook Mayra S; Fernandez Barbara
Cc: Gutierrez Beatriz
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Okay … these the only other times this week… April 11th: 10:00 or 12:00

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Holbrook, Mayra S
Sent: Tuesday, April 11, 2017 7:16 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Not good for Bea- She's out of the office on Thurs.

From: Rooslund, Tracey
Sent: Tuesday, April 11, 2017 7:01 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Holbrook, Mayra S <Mayra.S.Holbrook@ct gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Bea – does this work for your calendar?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Monday, April 10, 2017 5:50 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

That works.

Sent from my Windows Phone

From: Rooslund Tracey
Sent: 4/10/2017 1:41 PM
To: Fernandez Barbara; Gutierrez Beatriz
Cc: Kollen Bart; Holbrook Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No worries – what about April 13th at 10:30?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Monday, April 10, 2017 1:17 PM

To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Sorry just saw this.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/10/2017 6:19 AM
To: Gutierrez, Beatriz; Fernandez, Barbara
Cc: Kollen, Bart; Holbrook, Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

My error – I meant 10:30 today

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Rooslund, Tracey
Sent: Monday, April 10, 2017 7:39 AM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

How about 9:30 today, April 10th?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Could you please set up time with Bart for Barbara and I to discuss?

Thanks!

B

Beatriz N. Gutiérrez
Executive Director
Office of Business Development
Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No I haven't, happy to do so. Agree this is really not our issue at all.

Sent from my Windows Phone

From: Smith, Catherine H
Sent: 4/9/2017 1:18 PM

To: Fernandez Barbara; Gutierrez Beatriz
Cc: Kollen Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>
Cc: Smith, Catherine H <Catherine Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok can you set up time for us?

Sent from my Windows Phone

From: Gutierrez, Beatriz
Sent: 4/8/2017 9:14 AM
To: Fernandez Barbara
Cc: Smith Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

I think we should set some time with Catherine to get her direction on mex r steps before this escalates. Let's get Tracey to find some time.

B

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

From: Mark Bliek
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara
Cc: Smith Catherine H; Gutierrez Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs Fernandez, thanks for addressing my questions

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated CCAT administers the Manufacturing Innovation Fund Voucher Program for the state I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants Bolton Works, which received a grant in 2009 administered by CCAT, is an example

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,

I received notice to vacate the building on March 6th 2017 Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture Needless to say we are past the point of reconciliation

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Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

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409 Silver Lane
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Phone (860) 646-3948
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On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Dear Mr. Bliek- Thank you for your e-mail follow-up.
>
> 1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
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> This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.
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>
> Barbara Fernandez,Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford, CT 06106
> Tel: 860-270-8025
> Fax:860-707-1809
> E-mail: barbara.fernandez@ct.gov
>
> *Please consider the environment before printing*
>
> Connecticut
> still revolutionary
>
> Follow DECD
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Saturday, March 18, 2017 8:06 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Mrs Fernandez,
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> Regards,
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> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Dear Ms Smith,
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> I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.
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> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
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> In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.
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> In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.
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> I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.
>
> Sincerely,
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> **----------**
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> Tom, Don, Paul, ben.arsenault

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I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

From:	Gutierrez, Beatriz
Sent time:	04/11/2017 11:11:02 AM
To:	Rooslund, Tracey; Holbrook, Mayra S
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Unfortunately it does not work for me.

From: Rooslund, Tracey
Sent: Tuesday, April 11, 2017 9:47 AM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Hi … can you do 12?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106

From: Fernandez, Barbara
Sent: Tuesday, April 11, 2017 9:10 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Today at 12 works for me.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/11/2017 5:27 AM
To: Holbrook, Mayra S; Fernandez, Barbara
Cc: Gutierrez, Beatriz
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Okay … these the only other times this week… April 11th: 10:00 or 12:00

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106

From: Holbrook, Mayra S
Sent: Tuesday, April 11, 2017 7:16 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Not good for Bea- She's out of the office on Thurs.

From: Rooslund, Tracey
Sent: Tuesday, April 11, 2017 7:01 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Holbrook, Mayra S <Mayra.S.Holbrook@ct gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Bea – does this work for your calendar?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106

From: Fernandez, Barbara
Sent: Monday, April 10, 2017 5:50 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

That works.

Sent from my Windows Phone

From: Rooslund Tracey
Sent: 4/10/2017 1:41 PM
To: Fernandez Barbara; Gutierrez Beatriz
Cc: Kollen, Bart; Holbrook, Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No worries – what about April 13th at 10:30?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Monday, April 10, 2017 1:17 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Sorry just saw this.

Sent from my Windows Phone

From: Rooslund Tracey
Sent: 4/10/2017 6:19 AM
To: Gutierrez Beatriz; Fernandez Barbara
Cc: Kollen Bart; Holbrook Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

My error – I meant 10:30 today

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Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Rooslund, Tracey
Sent: Monday, April 10, 2017 7:39 AM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>; Fernandez, Barbara <Barbara.Fernandez@ct gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

How about 9:30 today, April 10th?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Could you please set up time with Bart for Barbara and I to discuss?

Thanks!

B

Beatriz N. Gutiérrez

Executive Director
Office of Business Development
Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No I haven't, happy to do so. Agree this is really not our issue at all.

Sent from my Windows Phone

From: Smith, Catherine H
Sent: 4/9/2017 1:18 PM
To: Fernandez_Barbara; Gutierrez_Beatriz
Cc: Kollen_Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>
Cc: Smith, Catherine H <Catherine Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok can you set up time for us?

Sent from my Windows Phone

From: Gutierrez, Beatriz
Sent: 4/8/2017 9:14 AM
To: Fernandez_Barbara
Cc: Smith_Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

I think we should set some time with Catherine to get her direction on mex r steps before this escalates. Let's get Tracey to find some time.

B

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works

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> **East Hartford, CT 06118**
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From:	Fernandez, Barbara
Sent time:	04/10/2017 01:16:42 PM
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Cc:	Kollen, Bart; Holbrook, Mayra S
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

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Connecticut
still revolutionary

From: Rooslund, Tracey
Sent: Monday, April 10, 2017 7:39 AM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

How about 9:30 today, April 10th?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Could you please set up time with Bart for Barbara and I to discuss?

Thanks!

B

Beatriz N. Gutiérrez
Executive Director
Office of Business Development
Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart.Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No I haven't, happy to do so. Agree this is really not our issue at all.

Sent from my Windows Phone

From: Smith Catherine H
Sent: 4/9/2017 1:18 PM
To: Fernandez Barbara; Gutierrez Beatriz
Cc: Kollen Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
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To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>
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To: Fernandez Barbara
Cc: Smith Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
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To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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Subject: Re: Conflict of interest DECD CCAT Bolton Works

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Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
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East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

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East Hartford, CT 06118

Phone (860) 646-3948
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> Barbara Fernandez,Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford, CT 06106
> Tel: 860-270-8025
> Fax:860-707-1809
> E-mail: barbara.fernandez@ct.gov
>
> *Please consider the environment before printing*
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> Connecticut
> still revolutionary
>
> Follow DECD
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Saturday, March 18, 2017 8:06 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
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>
> **Bolton Works - Precision 3D Scanning**

409 Silver Lane
East Hartford, CT 06118

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Mobile (860) 995-3087

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> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
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> I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.
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> Sincerely,
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> Tom, Don, Paul, ben.arsenault

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I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

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East Hartford, CT 06118

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Mobile (860) 995-3087

From:	Fernandez, Barbara
Sent time:	04/10/2017 05:49:33 PM
To:	Rooslund, Tracey; Gutierrez, Beatriz
Cc:	Kollen, Bart; Holbrook, Mayra S
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

That works.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/10/2017 1:41 PM
To: Fernandez, Barbara; Gutierrez, Beatriz
Cc: Kollen, Bart; Holbrook, Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No worries – what about April 13th at 10:30?

Cheerio,
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860-270-8017
Executive Secretary to
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Deputy Commissioner Bart Kollen
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505 Hudson Street, Hartford, CT 06106
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From: Fernandez, Barbara
Sent: Monday, April 10, 2017 1:17 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Sorry just saw this.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/10/2017 6:19 AM
To: Gutierrez, Beatriz; Fernandez, Barbara
Cc: Kollen, Bart; Holbrook, Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

My error – I meant 10:30 today

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Sent time:	04/10/2017 06:59:51 AM
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Cc:	Kollen, Bart; Fernandez, Barbara; Smith, Catherine H
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

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Executive Director

Office of Business Development

Department of Economic and Community Development

505 Hudson Street

Hartford, CT 06106

office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart.Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No I haven't, happy to do so. Agree this is really not our issue at all.

Sent from my Windows Phone

From: Smith, Catherine H
Sent: 4/9/2017 1:18 PM
To: Fernandez Barbara; Gutierrez Beatriz
Cc: Kollen Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner

Department of Economic and Community Development

860-270-8010 (office)

860-801-4254 (cell)

www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok can you set up time for us?

Sent from my Windows Phone

From: Gutierrez_Beatriz
Sent: 4/8/2017 9:14 AM
To: Fernandez_Barbara
Cc: Smith_Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

I think we should set some time with Catherine to get her direction on mex r steps before this escalates. Let's get Tracey to find some time.

B

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

From: Mark Bliek
Sent: 4/7/2017 12:12 PM
To: Fernandez_Barbara
Cc: Smith_Catherine H; Gutierrez_Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs Fernandez, thanks for addressing my questions

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

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I received notice to vacate the building on March 6th 2017 Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture Needless to say we are past the point of reconciliation

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted A visit by you therefore would be appreciated I am available any time next week

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Dear Mr. Bliek- Thank you for your e-mail follow-up.
>
> 1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
>
> This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.
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> 2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
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>
> Massachusetts.
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>
> Barbara Fernandez,Director
>
> Business Development
>
> Dept. of Economic and Community Dev.
>
> 505 Hudson Street
>
> Hartford, CT 06106
>
> Tel: 860-270-8025
>
> Fax:860-707-1809
>
> E-mail: barbara.fernandez@ct.gov
>
> *Please consider the environment before printing*
>
> Connecticut
> still revolutionary
>
> Follow DECD

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs It is now my understanding that the equipment will be offered for sale, once the demonstration period ends At that time, Bolton Works would like to have the opportunity to bid on the equipment

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3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT I made clear that my concerns are as much with CCAT as DECD However, I also made it clear that I am not looking at the current situation from a legal perspective The DECD and CCAT might have the right to act as they did Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD

I would like to invite you to visit Bolton Works It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works com> wrote:

> Dear Ms Smith,
>
> I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.
>
> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
>
> In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.
>
> In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state

subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities

I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members

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This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center

I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

From:	Kollen, Bart
Sent time:	04/10/2017 08:06:13 AM
To:	Rooslund, Tracey
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

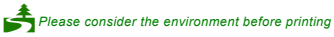
I thought you just sent a note to everyone that the All Ee meeting is starting at 9:30?

Bart

Bart Kollen
Deputy Commissioner
Department of Economic and Community Development
505 Hudson Street, Hartford, CT 06106
860-270-8020 (o)
860-212-4438 (c)
www.DECD.org







From: Rooslund, Tracey
Sent: Monday, April 10, 2017 7:39 AM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

How about 9:30 today, April 10th?

Cheerio,

Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106



From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Could you please set up time with Bart for Barbara and I to discuss?

Thanks!

B

Beatriz N. Gutiérrez
Executive Director
Office of Business Development
Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
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Commissioner
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860-270-8010 (office)
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> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford, CT 06106
> Tel: 860-270-8025
> Fax:860-707-1809
> E-mail: barbara.fernandez@ct.gov
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> *Please consider the environment before printing*
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> **Sent:** Saturday, March 18, 2017 8:06 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
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> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**

Phone (860) 646-3948
Mobile (860) 995-3087

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> **Mark Bliek - President**
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> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone** (860) 646-3948
> **Mobile** (860) 995-3087
>
> **----------**
>
> Tom, Don, Paul, ben.arsenault

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Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

From:	Holbrook, Mayra S
Sent time:	04/11/2017 07:16:26 AM
To:	Rooslund, Tracey
Cc:	Gutierrez, Beatriz
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Not good for Bea- She's out of the office on Thurs.

From: Rooslund, Tracey
Sent: Tuesday, April 11, 2017 7:01 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Bea – does this work for your calendar?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
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still revolutionary

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Sent: Monday, April 10, 2017 5:50 PM
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Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

That works.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/10/2017 1:41 PM
To: Fernandez, Barbara; Gutierrez, Beatriz
Cc: Kollen, Bart; Holbrook, Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No worries – what about April 13th at 10:30?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
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From: Fernandez, Barbara
Sent: Monday, April 10, 2017 1:17 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Sorry just saw this.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/10/2017 6:19 AM
To: Gutierrez, Beatriz; Fernandez, Barbara
Cc: Kollen, Bart; Holbrook, Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

My error – I meant 10:30 today

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Rooslund, Tracey
Sent: Monday, April 10, 2017 7:39 AM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>; Fernandez, Barbara <Barbara.Fernandez@ct gov>

Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

How about 9:30 today, April 10th?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Could you please set up time with Bart for Barbara and I to discuss?

Thanks!

B

Beatriz N. Gutiérrez
Executive Director
Office of Business Development
Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No I haven't, happy to do so. Agree this is really not our issue at all.

Sent from my Windows Phone

From: Smith, Catherine H
Sent: 4/9/2017 1:18 PM
To: Fernandez, Barbara; Gutierrez, Beatriz
Cc: Kollen, Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>
Cc: Smith, Catherine H <Catherine Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok can you set up time for us?

Sent from my Windows Phone

From: Gutierrez, Beatriz
Sent: 4/8/2017 9:14 AM
To: Fernandez, Barbara
Cc: Smith, Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

I think we should set some time with Catherine to get her direction on mex r steps before this escalates. Let's get Tracey to find some time.

B

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

From: Mark Bliek
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara
Cc: Smith Catherine H; Gutierrez Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs Fernandez, thanks for addressing my questions

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

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3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,

I received notice to vacate the building on March 6th 2017 Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture Needless to say we are past the point of reconciliation

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted A visit by you therefore would be appreciated I am available any time next week

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Dear Mr. Bliek- Thank you for your e-mail follow-up.
>
> 1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
>
> This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

Please consider the environment before printing
Connecticut
still revolutionary
Follow DECD

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs It is now my understanding that the equipment will be offered for sale, once the demonstration period ends At that time, Bolton Works would like to have the opportunity to bid on the equipment

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT I made clear that my concerns are as much with CCAT as DECD However, I also made it clear that I am not looking at the current situation from a legal perspective The DECD and CCAT might have the right to act as they did Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD

I would like to invite you to visit Bolton Works It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works com> wrote:

> Dear Ms Smith,
>
> I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.
>
> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
>
> In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

From:	Fernandez, Barbara
Sent time:	04/11/2017 11:03 53 AM
To:	Rooslund, Tracey
Cc:	Gutierrez, Beatriz; Holbrook, Mayra S; Kollen, Bart
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Ok I will call 860 270 8020 at 12.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/11/2017 8:38 AM
To: Fernandez, Barbara
Cc: Gutierrez, Beatriz; Holbrook, Mayra S; Kollen, Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Bea said it was okay to speak to Bart without her as she has a conflict. So call Bart at Noon, thanks.

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Tuesday, April 11, 2017 9:10 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Today at 12 works for me.

Sent from my Windows Phone

From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Could you please set up time with Bart for Barbara and I to discuss?

Thanks!

B

Beatriz N. Gutiérrez
Executive Director
Office of Business Development
Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart Kollen@ct.gov>
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Sent from my Windows Phone

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Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
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To: Fernandez_Barbara
Cc: Smith, Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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Sent from my Windows Phone

From: Mark Bliek
Sent: 4/7/2017 12:12 PM
To: Fernandez_Barbara
Cc: Smith_Catherine H; Gutierrez_Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs Fernandez, thanks for addressing my questions

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Mobile (860) 995-3087

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Dear Mr. Bliek- Thank you for your e-mail follow-up.
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>
> Barbara Fernandez,Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford, CT 06106
> Tel: 860-270-8025
> Fax:860-707-1809
> E-mail: barbara.fernandez@ct.gov
>
> *Please consider the environment before printing*
> Connecticut
> still revolutionary
> Follow DECD
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Saturday, March 18, 2017 8:06 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
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> This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017
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> Looking forward to your reply,
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

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> Dear Ms Smith,
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> Sincerely,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
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>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> **----------**
>
> Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities
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Regards,

Mark Bliek - President

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409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

From:	Kollen, Bart
Sent time:	04/27/2017 05:48:17 PM
To:	Rooslund, Tracey
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

PleasE let Barbara know. Meeting with Sullivan has priority.

Sent via the Samsung GALAXY S® 5, an AT&T 4G LTE smartphone

-------- Original message --------
From: "Rooslund, Tracey" <Tracey.Rooslund@ct.gov>
Date: 4/27/17 2:20 PM (GMT-04:00)
To: "Kollen, Bart" <Bart.Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Bart – you have a conflict at 1:30 on May 9th - Insurance Reinvestment Act program meeting is scheduled at 1:00p

Cheerio,

Tracey Rooslund

860-270-8017

Executive Secretary to

Commissioner Catherine Smith

Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development

505 Hudson Street, Hartford, CT 06106

Connecticut
still revolutionary

From: Kollen, Bart
Sent: Tuesday, April 18, 2017 5:03 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Hi Barbara,

The memo from CCAT is very helpful. I think your offer to meet with them while still letting them know along the way, we are not a party to the discussion makes sense.

May 09 at 1:30 is open on my end, I would be happy to sit in the meeting if you would like.

Bart

Bart

Bart Kollen

Deputy Commissioner

Department of Economic and Community Development

505 Hudson Street, Hartford, CT 06106

860-270-8020 (o)

860-212-4438 (c)

www.DECD.org

Connecticut
still revolutionary

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From: Fernandez, Barbara
Sent: Tuesday, April 18, 2017 10:01 AM
To: Kollen, Bart <Bart.Kollen@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

Below is my communications with Mr. Bliek, I have not confirmed the May 9th date. Attached is a letter from CCAt describing the situation from their perspective. As I stated to Mr. Bliek, DECD has not standing in his conversations/negotiations with CCAT. Please advise on how I should proceed. Thank you

Barbara Fernandez, Director

Business Development

Dept. of Economic and Community Dev.

505 Hudson Street

Hartford, CT 06106

Tel: 860-270-8025

Fax: 860-707-1809

E-mail: barbara.fernandez@ct.gov

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From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, April 11, 2017 7:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, Tuesday May 9th 1.30pm would work for me.

Looking forward to meet you.

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

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> Sent from my Windows Phone
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> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www facebook.com/boltonworks>

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Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
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[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

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Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

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I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

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Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

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This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

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[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Fernandez, Barbara
Sent time:	04/28/2017 10:20:30 AM
To:	Rooslund, Tracey
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

No problem- I have it

From: Rooslund, Tracey
Sent: Friday, April 28, 2017 10:04 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

See below – Bart is unable to attend, not sure why he said he could.

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Kollen, Bart
Sent: Thursday, April 27, 2017 5:48 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

PleasE let Barbara know. Meeting with Sullivan has priority.

Sent via the Samsung GALAXY S® 5, an AT&T 4G LTE smartphone

-------- Original message --------
From: "Rooslund, Tracey" <Tracey.Rooslund@ct.gov>
Date: 4/27/17 2:20 PM (GMT-04:00)
To: "Kollen, Bart" <Bart.Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Bart – you have a conflict at 1:30 on May 9th - Insurance Reinvestment Act program meeting is scheduled at 1:00p

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Kollen, Bart
Sent: Tuesday, April 18, 2017 5:03 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
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Bart Kollen
Deputy Commissioner
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505 Hudson Street, Hartford, CT 06106
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www.DECD.org







From: Fernandez, Barbara
Sent: Tuesday, April 18, 2017 10:01 AM
To: Kollen, Bart <Bart.Kollen@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
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Π Please consider the environment before printing

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Sent: Tuesday, April 11, 2017 7:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
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Mobile (860) 995-3087

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[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

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I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Fernandez, Barbara
Sent time:	03/20/2017 04:46:37 PM
To:	Mark Bliek <mark bliek@bolton-works com>; Smith, Catherine H
Cc:	Gutierrez, Beatriz
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

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Connecticut
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Follow DECD

From: Mark Bliek [mailto:mark.bliek@bolton-works com]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs It is now my understanding that the equipment will be offered for sale, once the demonstration period ends At that time, Bolton Works would like to have the opportunity to bid on the equipment

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT I made clear that my concerns are as much with CCAT as DECD However, I also made it clear that I am not looking at the current situation from a legal perspective The DECD and CCAT might have the right to act as they did Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD

I would like to invite you to visit Bolton Works It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

From:	Fernandez, Barbara
Sent time:	02/02/2018 01:34:25 PM
To:	Mark Bliek <mark bliek@bolton-works com>; Smith, Catherine H
Cc:	Kollen, Bart; Rooslund, Tracey
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

I just responded to your 1/30/2017 email. Sorry for the late response. I hope this satisfies your questions concerning the equipment.

Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
450 Columbus Boulevard/South Tower,Suite 5
Hartford, CT 06103-1843
Tel: 860-500-2325
E-mail: barbara.fernandez@ct.gov
ƒÀ Please consider the environment before printing

See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Friday, February 02, 2018 1:11 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms Fernandez, while waiting for your reply, I postponed certain investments, as it is unclear to me, to what extent CCAT is allowed to use the earlier mentioned equipment provided by the state for commercial purposes I therefore hope to see a response soon to my email from January 30th soon

For your information, another twist to this ongoing saga emerged:
CCAT IT's divison is the only division with significant revenue growth over the past 5 years Apparently reason enough for CCAT to form a new, for profit subsidiary at the end of 2017 called Novus Insight After years of state and federal support, which purpose it is to assist Connecticut companies, Novus Insight is now challenging other IT businesses in Connecticut If CCAT is allowed to do this with their IT business, what stops them from forming a for profit entity, performing technical services, like Bolton Works?

DECD has sought out CCAT to participate in several advisory boards, responsible for allocating funds to help the businesses in Connecticut It appears that CCAT cynically uses that position to propose projects for its own well being, not necessarily for the business community at large in Connecticut This is witnessed by it's behavior towards my company, the violation of the inurement prohibition for non profits, the ongoing projects with questionable merit and aforementioned forming of Novus Insight

Sincerely,

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Jan 30, 2018 at 10:24 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Thanks again, so rules for CCAT to use the Atos 3D scanner and the North Star Imaging CT scanner installed for the ITC include:
>
> 1) Company for which the equipment is used needs to be Connecticut based and needs to be a defense manufacturer
> 2) The project needs to be a demonstration project for evaluation of the technology (versus a commercial service contract)
> 3) United Technology subsidiaries are not excluded, as long rules 1 and 2 apply
>
> Other uses would violate the contract between CCAT and DECD and would violate the conditions under which the Department of Defense Office of Economic Adjustment has made the funding available to DECD
>
> Please confirm,
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**

East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Jan 29, 2018 at 5:29 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Any equipment in the ITC, which is owned by the state of CT, is under the same rules.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 5:01 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:
>
> > Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
> >
> > **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> > **Sent:** Monday, January 29, 2018 12:42 PM
> > **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> > **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> > **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
> >
> > Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.
> >
> > As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.
> >
> > An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.
> >
> > I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?
> >
> > Regards,
> >
> > **Mark Bliek - President**
> >
> > **Bolton Works - Precision 3D Scanning**
> > **409 Silver Lane**
> > **East Hartford, CT 06118**
> >
> > **Phone (860) 646-3948**
> > **Mobile (860) 995-3087**
> >
> > **Mark Bliek - President**
> >
> > **Bolton Works - Precision 3D Scanning**
> > **409 Silver Lane**
> > **East Hartford, CT 06118**
> >
> > **Phone (860) 646-3948**
> > **Mobile (860) 995-3087**

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.

Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
450 Columbus Boulevard/South Tower,Suite 5
Hartford, CT 06103-1843
Tel: 860-500-2325
E-mail: barbara.fernandez@ct.gov
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See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, December 05, 2017 11:26 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
2011 Bolton Works acquires 2nd 3D scanner.
2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
2014 Bolton Works acquires 3rd 3D scanner
2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.
2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:

1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:
>
> > Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
> >
> > Barbara Fernandez, Director
> > Business Development
> > Dept. of Economic and Community Dev.
> > 505 Hudson Street
> > Hartford CT 06106
> > Tel: 860-270-8025
> > Fax: 860-707-1809
> > E-mail: barbara.fernandez@ct.gov
> > Π Please consider the environment before printing
> >
> > ---
> >
> > The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35
> >
> > The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts
> >
> > Other sites were under considering, like UConn's Technology Park but were not suitable or ready
> >
> > My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location
> >
> > * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment
> >
> > * The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above
> >
> > * No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered

* State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.
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>
> Looking forward to your reply,
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> Regards,
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> Bolton Works - Precision 3D Scanning
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> [https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
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Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>
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[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

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1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

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I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

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Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

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Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

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I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

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Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

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This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

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[Image removed by sender.] <http://www.facebook.com/boltonworks>

From:	Fernandez, Barbara
Sent time:	05/19/2017 09:29:05 AM
To:	Mark Bliek <mark bliek@bolton-works com>; Kollen, Bart; Rooslund, Tracey
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)

Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax: 860-707-1809
E-mail: barbara.fernandez@ct.gov
ƒÀ Please consider the environment before printing

The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35

The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts

Other sites were under considering, like UConn's Technology Park but were not suitable or ready

My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above

* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered

* State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

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On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
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> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
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> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
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[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

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Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Fernandez, Barbara
Sent time:	08/30/2017 12:59:59 PM
To:	Mark Bliek <mark bliek@bolton-works com>
Cc:	Kollen, Bart; Rooslund, Tracey
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Wednesday, August 30, 2017 12:32 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez,

Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
Is it still the intention of DECD to dispose of the scanner?

Regards,

Mark Bliek - President

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Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford, CT 06106
> Tel: 860-270-8025
> Fax: 860-707-1809
> E-mail: barbara.fernandez@ct.gov
> ΠΙ Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35
>
> The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready
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> My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location
>
> * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment
>
> * The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above
>
> * No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered
>
> * State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses
>
> * The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force

work

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

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* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works

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Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.
>
> I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.
>
> 4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.
>
> Looking forward to your reply,
>
> Regards,
>
> Mark Bliek - President
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118
>
> Phone (860) 646-3948<tel:(860)%20646-3948>
> Mobile (860) 995-3087<tel:(860)%20995-3087>
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> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118
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> Phone (860) 646-3948
> Mobile (860) 995-3087
>
> [https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]<http://www facebook.com/boltonworks>
>
> On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:

Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www.facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto mark.bliek@bolton-works.com<mailto mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Fernandez, Barbara
Sent time:	12/05/2017 05:33:36 PM
To:	Mark Bliek <mark bliek@bolton-works com>
Cc:	Kollen, Bart; Rooslund, Tracey
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.

Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
450 Columbus Boulevard/South Tower,Suite 5
Hartford, CT 06103-1843
Tel: 860-500-2325
E-mail: barbara.fernandez@ct.gov
ƒÀ Please consider the environment before printing

See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, December 05, 2017 11:26 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
2011 Bolton Works acquires 2nd 3D scanner.
2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
2014 Bolton Works acquires 3rd 3D scanner
2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.
2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:

1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
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> >
> > Barbara Fernandez, Director
> > Business Development
> > Dept. of Economic and Community Dev.
> > 505 Hudson Street
> > Hartford CT 06106
> > Tel: 860-270-8025
> > Fax: 860-707-1809
> > E-mail: barbara.fernandez@ct.gov
> > Π Please consider the environment before printing
> >
> > ---
> >
> > The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35
> >
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* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered

* State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

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Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.
>
> I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.
>
> 4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.
>
> Looking forward to your reply,
>
> Regards,
>
> Mark Bliek - President
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118
>
> Phone (860) 646-3948<tel:(860)%20646-3948>
> Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto mark.bliek@bolton-works.com<mailto mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have

the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.

This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab. Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center. I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Fernandez, Barbara
Sent time:	01/29/2018 04:42:21 PM
To:	Mark Bliek <mark bliek@bolton-works com>
Cc:	Kollen, Bart; Rooslund, Tracey
Subject:	RE: Conflict of interest DECD CCAT Bolton Works
Attachments:	ITC Marketing Flyer E rev docx

Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Monday, January 29, 2018 12:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.

As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.

An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.

I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?

Regards,

Mark Bliek - President

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East Hartford, CT 06118

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Mobile (860) 995-3087

Mark Bliek - President

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409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct.gov
> IT Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Tuesday, December 05, 2017 11:26 AM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>

Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
2011 Bolton Works acquires 2nd 3D scanner.
2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
2014 Bolton Works acquires 3rd 3D scanner
2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.
2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:

1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Wednesday, August 30, 2017 12:32 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez,

Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
Is it still the intention of DECD to dispose of the scanner?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford CT 06106
> Tel: 860-270-8025
> Fax: 860-707-1809
> E-mail: barbara.fernandez@ct.gov
> ΠΙ Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35
>
> The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready
>
> My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location
>
> * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment
>
> * The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above
>
> * No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered
>
> * State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses
>
> * The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work
>
> Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
> The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Thursday, May 18, 2017 8:57 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

Sincerely,

Mark Bliek - President

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On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
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> **Mark Bliek - President**
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On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> > I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

From: Mark Bliek<mailto mark.bliek@bolton-works.com>
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara<mailto:Barbara Fernandez@ct.gov>
Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, thanks for addressing my questions.

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.

I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

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Mobile (860) 995-3087

[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
<http://www facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct gov<mailto:Barbara Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto mark.bliek@bolton-works.com<mailto mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer

of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

Innovation Technology Center (ITC)

The State of Connecticut is looking for Connecticut defense manufacturers who want to evaluate if Structured Light Scanning (SLS) technology works for them. CT manufacturers can have a Demonstration Project performed at the newly constructed ITC. The ITC is sponsored by the Department of Defense Office of Economic Adjustment and the Connecticut Department of Economic and Community Development. The ITC is 1000 ft^2 of lab space managed by the Connecticut Center for Advanced Technology Inc. (CCAT) in East Hartford. There is no cost to participate.

WHAT IS A DEMONSTRATION PROJECT?
A demonstration project will allow CT manufacturers to evaluate structured light scanning technology against technologies (CMM or manual inspections) they are currently using. This will be done by using new technology on real parts and comparing results to what suppliers currently are achieving. A Structured Light Scanning Demonstration Project will allow suppliers to have one of their own manufactured parts scanned using the structured, blue light scanner available at the ITC:

- The GOM ATOS Scanbox 5108 is an optical 3D measuring machine developed for quality control in larger production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. (GOM Website)

CCAT personnel will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so that results from the new technology can be compared directly to results from the current technology being used by the supplier.

WHY DO AN SLS DEMONSTRATION PROJECT AT THE ITC?

- Mechanical measuring machines capture data in a point-based or linear manner while optical 3D coordinate measuring systems provide full-field deviations of 3D actual coordinates and CAD data
- The GOM ATOS machine is one example of optical scanning technology
- Compare new technology capabilities to current technology capabilities
- Evaluate impact on effectiveness, efficiency and productivity of new technology
- A Demonstration Project is FREE to CT defense manufacturers

A Non-Disclosure Agreement (NDA) can be executed to protect the manufacturer's process knowledge. CCAT is an ITAR controlled facility.

HOW DO I APPLY?
Contact Mr. Wayne Sumple at CCAT.

Wayne Sumple
CCAT's Advanced Manufacturing Center
409 Silver Lane
East Hartford, CT. 06118
wsumple@ccat.us

DEMONSTRATION PROJECT PROCESS

1. CT manufacturer to sign Non-Disclosure Agreement (NDA)
2. CT manufacturer to sign Export Control Intake Certification (ECIC)
3. CT manufacturer to complete Assistance Application for Structured Light Scanning
    a. Describe part(s) to be scanned
        i. Name of part
        ii. # of parts
        iii. Special handling instructions
    b. STRUCTURED LIGHT SCANNING (SLS)
        i. Identify data to be gathered during SLS demonstration project
            1. Time to process
            2. Cost to process - material consumed during process
            3. Metrology criteria – list of specific measurements or dimensional values required for evaluation of SLS
            4. Comparison of new measurements or dimensional values generated with SLS in the ITC to existing data taken by the SME at their facility
            5. Shipping/receiving instructions
    c. Provide format for report data
    d. Identify how part(s) will be delivered to/from ITC
        i. Supplier to hand carry to ITC
        ii. Supplier to ship to ITC

From:	Fernandez, Barbara
Sent time:	01/29/2018 05:29:24 PM
To:	Mark Bliek <mark bliek@bolton-works com>
Cc:	Kollen, Bart; Rooslund, Tracey
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Any equipment in the ITC, which is owned by the state of CT, is under the same rules.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Monday, January 29, 2018 5:01 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 12:42 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.
>
> As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.
>
> An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.
>
> I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct.gov
> Π Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, December 05, 2017 11:26 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
2011 Bolton Works acquires 2nd 3D scanner.
2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
2014 Bolton Works acquires 3rd 3D scanner
2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.
2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:

1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara Fernandez@ct.gov> wrote:
>
> > Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
> >
> > Barbara Fernandez, Director
> > Business Development
> > Dept. of Economic and Community Dev.
> > 505 Hudson Street
> > Hartford, CT 06106
> > Tel: 860-270-8025
> > Fax: 860-707-1809
> > E-mail: barbara.fernandez@ct.gov
> > Π Please consider the environment before printing
> >
> > ---
> >
> > The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35
> >
> > The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts
> >
> > Other sites were under considering, like UConn's Technology Park but were not suitable or ready
> >
> > My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location
> >
> > * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment
> >
> > * The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect

my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above

* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered

* State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**

East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.
>
> I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.
>
> 4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.
>
> Looking forward to your reply,
>
> Regards,
>
> Mark Bliek - President
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118
>
> Phone (860) 646-3948<tel:(860)%20646-3948>
> Mobile (860) 995-3087<tel:(860)%20995-3087>
>
> Mark Bliek - President
>
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118
>
> Phone (860) 646-3948
> Mobile (860) 995-3087
>
> [https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
> <http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>
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[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www.facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>

Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

From:	Fernandez, Barbara
Sent time:	02/02/2018 01:25:59 PM
To:	Mark Bliek <mark bliek@bolton-works com>
Cc:	Kollen, Bart; Rooslund, Tracey
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

The following statements are correct:

Company for which the equipment is used needs to be Connecticut based and needs to be a defense manufacturer
2) The project needs to be a demonstration project for evaluation of the technology (versus a commercial service contract)
3) United Technology subsidiaries are not excluded, as long rules 1 and 2 apply

Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
450 Columbus Boulevard/South Tower,Suite 5
Hartford, CT 06103-1843
Tel: 860-500-2325
E-mail: barbara.fernandez@ct.gov
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See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, January 30, 2018 10:25 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Thanks again, so rules for CCAT to use the Atos 3D scanner and the North Star Imaging CT scanner installed for the ITC include:

1) Company for which the equipment is used needs to be Connecticut based and needs to be a defense manufacturer
2) The project needs to be a demonstration project for evaluation of the technology (versus a commercial service contract)
3) United Technology subsidiaries are not excluded, as long rules 1 and 2 apply

Other uses would violate the contract between CCAT and DECD and would violate the conditions under which the Department of Defense Office of Economic Adjustment has made the funding available to DECD

Please confirm,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Jan 29, 2018 at 5:29 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Any equipment in the ITC, which is owned by the state of CT, is under the same rules.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 5:01 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 12:42 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.
>
> As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.
>
> An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.
>
> I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone** (860) 646-3948
> **Mobile** (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct.gov
> Π Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Tuesday, December 05, 2017 11:26 AM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
2011 Bolton Works acquires 2nd 3D scanner.
2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
2014 Bolton Works acquires 3rd 3D scanner
2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.
2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:
1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,

Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
Is it still the intention of DECD to dispose of the scanner?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford CT 06106
> Tel: 860-270-8025
> Fax: 860-707-1809
> E-mail: barbara.fernandez@ct.gov
> Π Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35
>
> The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready
>
> My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location
>
> * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment
>
> * The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above
>
> * No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered
>
> * State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses
>
> * The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work
>
> Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
> The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Thursday, May 18, 2017 8:57 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms Fernandez, thanks for you visit on 5/9,
>
> This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual
>
> * The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making
>
> * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
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Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

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[https://docs.google com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]<http://www facebook.com/boltonworks>

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Barbara Fernandez,Director
Business Development
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505 Hudson Street
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Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>

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[cid:image002.png@01CD37FC.C1604310]
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[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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[Image removed by sender.] <http://www.facebook.com/boltonworks>

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Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive

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Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

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From:	Fernandez, Barbara
Sent time:	04/07/2017 12:25 54 PM
To:	Mark Bliek <mark bliek@bolton-works com>
Cc:	Smith, Catherine H; Gutierrez, Beatriz
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

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Sent from my Windows Phone

From: Mark Bliek
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To: Fernandez_Barbara
Cc: Smith_Catherine H; Gutierrez_Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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Barbara Fernandez,Director

Business Development

Dept. of Economic and Community Dev.

505 Hudson Street

Hartford, CT 06106

Tel: 860-270-8025

Fax:860-707-1809

E-mail: barbara.fernandez@ct.gov

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Follow DECD

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
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East Hartford, CT 06118

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Mobile (860) 995-3087

From:	Fernandez, Barbara
Sent time:	04/19/2017 03:47:14 PM
To:	Kollen, Bart; Gutierrez, Beatriz
Cc:	Rooslund, Tracey
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Thank you- I will send an invite.

From: Kollen, Bart
Sent: Tuesday, April 18, 2017 5:03 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Hi Barbara,

The memo from CCAT is very helpful. I think your offer to meet with them while still letting them know along the way, we are not a party to the discussion makes sense.

May 09 at 1:30 is open on my end, I would be happy to sit in the meeting if you would like.

Bart

Bart

Bart Kollen
Deputy Commissioner
Department of Economic and Community Development
505 Hudson Street, Hartford, CT 06106
860-270-8020 (o)
860-212-4438 (c)
www.DECD.org

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still revolutionary

Please consider the environment before printing

From: Fernandez, Barbara
Sent: Tuesday, April 18, 2017 10:01 AM
To: Kollen, Bart <Bart.Kollen@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

Below is my communications with Mr. Bliek, I have not confirmed the May 9th date. Attached is a letter from CCAt describing the situation from their perspective. As I stated to Mr. Bliek, DECD has not standing in his conversations/negotiations with CCAT. Please advise on how I should proceed. Thank you

Barbara Fernandez, Director
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505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax: 860-707-1809
E-mail: barbara.fernandez@ct.gov
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From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, April 11, 2017 7:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, Tuesday May 9th 1.30pm would work for me.

Looking forward to meet you.

Regards,

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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www facebook.com/boltonworks>

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P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto mark.bliek@bolton-works.com<mailto mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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Looking forward to your reply,

Regards,

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409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

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[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Rooslund, Tracey
Sent time:	04/27/2017 02:20:29 PM
To:	Kollen, Bart
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Bart – you have a conflict at 1:30 on May 9th - Insurance Reinvestment Act program meeting is scheduled at 1:00p

Cheerio,

Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Kollen, Bart
Sent: Tuesday, April 18, 2017 5:03 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
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May 09 at 1:30 is open on my end, I would be happy to sit in the meeting if you would like.

Bart

Bart

Bart Kollen
Deputy Commissioner
Department of Economic and Community Development
505 Hudson Street, Hartford, CT 06106
860-270-8020 (o)
860-212-4438 (c)
www.DECD.org

Connecticut
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Sent: Tuesday, April 18, 2017 10:01 AM
To: Kollen, Bart <Bart.Kollen@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

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Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax: 860-707-1809
E-mail: barbara.fernandez@ct.gov
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To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
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Subject: Re: Conflict of interest DECD CCAT Bolton Works

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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
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On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

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This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
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[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www facebook.com/pages/DECD/188972734470153>
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From:	Rooslund, Tracey
Sent time:	04/27/2017 06:03:39 PM
To:	Kollen, Bart
Subject:	Re: Conflict of interest DECD CCAT Bolton Works
Attachments:	image001 jpg image002 jpg image003 jpg image004 jpg

Ok

Sent from my iPhone

On Apr 27, 2017, at 5:48 PM, Kollen, Bart <Bart.Kollen@ct.gov> wrote:

> PleasE let Barbara know. Meeting with Sullivan has priority.
>
> Sent via the Samsung GALAXY S® 5, an AT&T 4G LTE smartphone
>
> -------- Original message --------
> From: "Rooslund, Tracey" <Tracey.Rooslund@ct.gov>
> Date: 4/27/17 2:20 PM (GMT-04:00)
> To: "Kollen, Bart" <Bart.Kollen@ct.gov>
> Subject: RE: Conflict of interest DECD CCAT Bolton Works
>
> Bart – you have a conflict at 1:30 on May 9th - Insurance Reinvestment Act program meeting is scheduled at 1:00p
>
> *Cheerio,*
>
> Tracey Rooslund
>
> 860-270-8017
>
> Executive Secretary to
>
> *Commissioner Catherine Smith*
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> *Dept. of Economic & Community Development*
>
> *505 Hudson Street, Hartford, CT 06106*
>
> <image001.jpg>
>
> ---
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> **Sent:** Tuesday, April 18, 2017 5:03 PM
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Bart

Bart Kollen

Deputy Commissioner

Department of Economic and Community Development

505 Hudson Street, Hartford, CT 06106

860-270-8020 (o)

860-212-4438 (c)

www.DECD.org

<image001.jpg>

<image002.jpg><image003.jpg><image004.jpg>

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From: Fernandez, Barbara
Sent: Tuesday, April 18, 2017 10:01 AM
To: Kollen, Bart <Bart.Kollen@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
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Business Development

Dept. of Economic and Community Dev.

505 Hudson Street

Hartford, CT 06106

Tel: 860-270-8025

Fax: 860-707-1809

E-mail: barbara.fernandez@ct.gov

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To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www facebook.com/boltonworks>

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1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto mark.bliek@bolton-works.com<mailto mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

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3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

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This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

From: Rooslund, Tracey
Sent time: 04/11/2017 07:27:43 AM
To: Holbrook, Mayra S; Fernandez, Barbara
Cc: Gutierrez, Beatriz
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Okay … these the only other times this week… April 11th: 10:00 or 12:00

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Holbrook, Mayra S
Sent: Tuesday, April 11, 2017 7:16 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Not good for Bea- She's out of the office on Thurs.

From: Rooslund, Tracey
Sent: Tuesday, April 11, 2017 7:01 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Holbrook, Mayra S <Mayra.S.Holbrook@ct gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Bea – does this work for your calendar?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Monday, April 10, 2017 5:50 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

That works.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/10/2017 1:41 PM
To: Fernandez, Barbara; Gutierrez, Beatriz
Cc: Kollen, Bart; Holbrook, Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No worries – what about April 13th at 10:30?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Monday, April 10, 2017 1:17 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Sorry just saw this.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/10/2017 6:19 AM

To: Gutierrez_Beatriz; Fernandez_Barbara
Cc: Kollen_Bart; Holbrook_Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

My error – I meant 10:30 today

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Rooslund, Tracey
Sent: Monday, April 10, 2017 7:39 AM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>; Fernandez, Barbara <Barbara.Fernandez@ct gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

How about 9:30 today, April 10th?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Could you please set up time with Bart for Barbara and I to discuss?

Thanks!

B

Beatriz N. Gutiérrez
Executive Director
Office of Business Development
Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No I haven't, happy to do so. Agree this is really not our issue at all.

Sent from my Windows Phone

From: Smith, Catherine H
Sent: 4/9/2017 1:18 PM
To: Fernandez_Barbara; Gutierrez_Beatriz
Cc: Kollen_Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development

860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>
Cc: Smith, Catherine H <Catherine Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok can you set up time for us?

Sent from my Windows Phone

From: Gutierrez Beatriz
Sent: 4/8/2017 9:14 AM
To: Fernandez, Barbara
Cc: Smith Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

I think we should set some time with Catherine to get her direction on mex r steps before this escalates. Let's get Tracey to find some time.

B

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

From: Mark Bliek
Sent: 4/7/2017 12:12 PM
To: Fernandez Barbara
Cc: Smith Catherine H; Gutierrez Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs Fernandez, thanks for addressing my questions

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated CCAT administers the Manufacturing Innovation Fund Voucher Program for the state I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants Bolton Works, which received a grant in 2009 administered by CCAT, is an example

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,

I received notice to vacate the building on March 6th 2017 Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture Needless to say we are past the point of reconciliation

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted A visit by you therefore would be appreciated I am available any time next week

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning

409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

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Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

Please consider the environment before printing
Connecticut
still revolutionary
Follow DECD

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017

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Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

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>
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> I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.
>
> Sincerely,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> **----------**
>
> Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities
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Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

From:	Rooslund, Tracey
Sent time:	04/10/2017 07:39:15 AM
To:	Gutierrez, Beatriz; Fernandez, Barbara
Cc:	Kollen, Bart; Holbrook, Mayra S
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

How about 9:30 today, April 10th?

Cheers,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct gov>
Cc: Kollen, Bart <Bart.Kollen@ct gov>; Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Could you please set up time with Bart for Barbara and I to discuss?

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B

Beatriz N. Gutiérrez
Executive Director
Office of Business Development
Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No I haven't, happy to do so. Agree this is really not our issue at all.

Sent from my Windows Phone

From: Smith, Catherine H
Sent: ý4/ý9/ý2017 1:18 PM
To: Fernandez, Barbara; Gutierrez, Beatriz
Cc: Kollen, Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>
Cc: Smith, Catherine H <Catherine Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok can you set up time for us?

Sent from my Windows Phone

From: Gutierrez, Beatriz

Sent: ý4/ý8/ý2017 9:14 AM
To: Fernandez Barbara
Cc: Smith Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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Subject: Re: Conflict of interest DECD CCAT Bolton Works

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I received notice to vacate the building on March 6th 2017 Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture Needless to say we are past the point of reconciliation

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Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

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East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Dear Mr. Bliek- Thank you for your e-mail follow-up.
>
> 1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that

time, Bolton Works would like to have the opportunity to bid on the equipment

This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

Please consider the environment before printing
Connecticut
still revolutionary
Follow DECD

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs It is now my understanding that the equipment will be offered for sale, once the demonstration period ends At that time, Bolton Works would like to have the opportunity to bid on the equipment

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3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT I made clear that my concerns are as much with CCAT as DECD However, I also made it clear that I am not looking at the current situation from a legal perspective The DECD and CCAT might have the right to act as they did Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD

I would like to invite you to visit Bolton Works It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Dear Ms Smith,
>
> I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.
>
> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
>
> In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton

Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

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Mobile (860) 995-3087

Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities
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I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

From:	Rooslund, Tracey
Sent time:	04/11/2017 09:46:44 AM
To:	Gutierrez, Beatriz; Holbrook, Mayra S
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Hi … can you do 12?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Tuesday, April 11, 2017 9:10 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Today at 12 works for me.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/11/2017 5:27 AM
To: Holbrook, Mayra S; Fernandez, Barbara
Cc: Gutierrez, Beatriz
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Okay … these the only other times this week… April 11th: 10:00 or 12:00

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Holbrook, Mayra S
Sent: Tuesday, April 11, 2017 7:16 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Not good for Bea- She's out of the office on Thurs.

From: Rooslund, Tracey
Sent: Tuesday, April 11, 2017 7:01 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Holbrook, Mayra S <Mayra.S.Holbrook@ct gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Bea – does this work for your calendar?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Monday, April 10, 2017 5:50 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

That works.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/10/2017 1:41 PM
To: Fernandez, Barbara; Gutierrez, Beatriz
Cc: Kollen, Bart; Holbrook, Mayra S

Subject: RE: Conflict of interest DECD CCAT Bolton Works

No worries – what about April 13th at 10:30?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106

From: Fernandez, Barbara
Sent: Monday, April 10, 2017 1:17 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Sorry just saw this.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/10/2017 6:19 AM
To: Gutierrez Beatriz; Fernandez Barbara
Cc: Kollen Bart; Holbrook Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

My error – I meant 10:30 today

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106

From: Rooslund, Tracey
Sent: Monday, April 10, 2017 7:39 AM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>; Fernandez, Barbara <Barbara.Fernandez@ct gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

How about 9:30 today, April 10th?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106

From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Could you please set up time with Bart for Barbara and I to discuss?

Thanks!

B

Beatriz N. Gutiérrez
Executive Director
Office of Business Development
Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No I haven't, happy to do so. Agree this is really not our issue at all.

Sent from my Windows Phone

From: Smith, Catherine H
Sent: 4/9/2017 1:18 PM
To: Fernandez, Barbara; Gutierrez, Beatriz
Cc: Kollen, Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>
Cc: Smith, Catherine H <Catherine Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok can you set up time for us?

Sent from my Windows Phone

From: Gutierrez, Beatriz
Sent: 4/8/2017 9:14 AM
To: Fernandez, Barbara
Cc: Smith, Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

I think we should set some time with Catherine to get her direction on mex r steps before this escalates. Let's get Tracey to find some time.

B

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

From: Mark Bliek
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara
Cc: Smith, Catherine H; Gutierrez, Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs Fernandez, thanks for addressing my questions

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Mobile (860) 995-3087

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> Barbara Fernandez,Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford, CT 06106
> Tel: 860-270-8025
> Fax:860-707-1809
> E-mail: barbara.fernandez@ct.gov
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> *Please consider the environment before printing*
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> Follow DECD
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> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
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>
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> **Mark Bliek - President**
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> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> **----------**
>
> Tom, Don, Paul, ben.arsenault

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Regards,

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East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

From:	Rooslund, Tracey
Sent time:	04/10/2017 08:19:27 AM
To:	Gutierrez, Beatriz; Fernandez, Barbara
Cc:	Kollen, Bart; Holbrook, Mayra S
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

My error – I meant 10:30 today

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Rooslund, Tracey
Sent: Monday, April 10, 2017 7:39 AM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

How about 9:30 today, April 10th?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
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From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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Thanks!

B

Beatriz N. Gutiérrez
Executive Director
Office of Business Development
Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No I haven't, happy to do so. Agree this is really not our issue at all.

Sent from my Windows Phone

From: Smith, Catherine H
Sent: ý4/ý9/ý2017 1:18 PM
To: Fernandez, Barbara; Gutierrez, Beatriz
Cc: Kollen, Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>
Cc: Smith, Catherine H <Catherine Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok can you set up time for us?

Sent from my Windows Phone

From: Gutierrez, Beatriz
Sent: ý4/ý8/ý2017 9:14 AM
To: Fernandez Barbara
Cc: Smith Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

I think we should set some time with Catherine to get her direction on mex r steps before this escalates. Let's get Tracey to find some time.

B

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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To: Fernandez, Barbara
Cc: Smith Catherine H; Gutierrez Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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Looking forward to your reply,

Regards,

Mark Bliek - President

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East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

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On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

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The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with Massachusetts.

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505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

Please consider the environment before printing
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Follow DECD

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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I would like to invite you to visit Bolton Works It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process

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> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
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I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

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From:	Fernandez, Barbara
Sent time:	04/08/2017 03:12:47 PM
To:	Gutierrez, Beatriz
Cc:	Smith, Catherine H
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

I will be back Thursday but I think you are out until 4/18. The 18th in the morning works for me.

Sent from my Windows Phone

From: Gutierrez Beatriz
Sent: 4/8/2017 12:52 PM
To: Fernandez, Barbara
Cc: Smith Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Sure. When are you back?

B

Beatriz N. Gutiérrez

Executive Director

Office of Business Development

Department of Economic and Community Development

505 Hudson Street

Hartford, CT 06106

office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara Fernandez@ct.gov>
Date: 4/8/2017 12:01 PM (GMT-05:00)
To: "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
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> Dept. of Economic and Community Dev.
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> *Please consider the environment before printing*
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Dear Mrs Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs It is now my understanding that the equipment will be offered for sale, once the demonstration period ends At that time, Bolton Works would like to have the opportunity to bid on the equipment

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT I made clear that my concerns are as much with CCAT as DECD However, I also made it clear that I am not looking at the current situation from a legal perspective The DECD and CCAT might have the right to act as they did Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD

I would like to invite you to visit Bolton Works It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Dear Ms Smith,
>
> I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.
>
> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
>
> In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.
>
> In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities

I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD

This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center

I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

From:	Mark Bliek <mark bliek@bolton-works com>
Sent time:	03/18/2017 08:06:12 PM
To:	Fernandez, Barbara; Smith, Catherine H
Subject:	Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs It is now my understanding that the equipment will be offered for sale, once the demonstration period ends At that time, Bolton Works would like to have the opportunity to bid on the equipment

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Mark Bliek - President

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Mobile (860) 995-3087

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works com> wrote:

> Dear Ms Smith,
>
> I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.
>
> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
>
> In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.
>
> In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.
>
> Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President

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I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

Mark Bliek - President

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East Hartford, CT 06118

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Mobile (860) 995-3087

From:	Mark Bliek <mark.bliek@bolton-works.com>
Sent time:	02/02/2018 01:11:11 PM
To:	Fernandez, Barbara; Smith, Catherine H
Cc:	Kollen, Bart; Rooslund, Tracey
Subject:	Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez, while waiting for your reply, I postponed certain investments, as it is unclear to me, to what extent CCAT is allowed to use the earlier mentioned equipment provided by the state for commercial purposes. I therefore hope to see a response soon to my email from January 30th soon.

For your information, another twist to this ongoing saga emerged:
CCAT IT's divison is the only division with significant revenue growth over the past 5 years. Apparently reason enough for CCAT to form a new, for profit subsidiary at the end of 2017 called Novus Insight. After years of state and federal support, which purpose it is to assist Connecticut companies, Novus Insight is now challenging other IT businesses in Connecticut. If CCAT is allowed to do this with their IT business, what stops them from forming a for profit entity, performing technical services, like Bolton Works?

DECD has sought out CCAT to participate in several advisory boards, responsible for allocating funds to help the businesses in Connecticut. It appears that CCAT cynically uses that position to propose projects for its own well being, not necessarily for the business community at large in Connecticut. This is witnessed by it's behavior towards my company, the violation of the inurement prohibition for non profits, the ongoing projects with questionable merit and aforementioned forming of Novus Insight.

Sincerely,

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Jan 30, 2018 at 10:24 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Thanks again, so rules for CCAT to use the Atos 3D scanner and the North Star Imaging CT scanner installed for the ITC include:
>
> 1) Company for which the equipment is used needs to be Connecticut based and needs to be a defense manufacturer
> 2) The project needs to be a demonstration project for evaluation of the technology (versus a commercial service contract)
> 3) United Technology subsidiaries are not excluded, as long rules 1 and 2 apply
>
> Other uses would violate the contract between CCAT and DECD and would violate the conditions under which the Department of Defense Office of Economic Adjustment has made the funding available to DECD
>
> Please confirm,
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Jan 29, 2018 at 5:29 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Any equipment in the ITC, which is owned by the state of CT, is under the same rules.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 5:01 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**
>
> On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:
>
> > Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
> >
> > **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> > **Sent:** Monday, January 29, 2018 12:42 PM
> > **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> > **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> > **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
> >
> > Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT

operates.

As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.

An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.

I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

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Mobile (860) 995-3087

Mark Bliek - President

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East Hartford, CT 06118

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Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.

Barbara Fernandez, Director

Business Development

Dept. of Economic and Community Dev.

450 Columbus Boulevard/South Tower,Suite 5

Hartford, CT 06103-1843

Tel: 860-500-2325

E-mail: barbara.fernandez@ct.gov

Π Please consider the environment before printing

See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, December 05, 2017 11:26 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.

Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner

2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.

2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.

2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.

2011 Bolton Works acquires 2nd 3D scanner.

2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.

2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.

2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.

2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).

2014 Bolton Works acquires 3rd 3D scanner

2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.

2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.

2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.

2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.

2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.

2017 Installation of Northstar Imaging CT scanner by CCAT/DECD

2017 Announcement by UTRC to install CT scanner in its new facility

2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:

1) CCAT - access to State equipment and funding to promote itself and services

2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT

3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)

4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT

5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.

Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.

The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?

Is it still the intention of DECD to dispose of the scanner?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
>
> Business Development
>
> Dept. of Economic and Community Dev.
>
> 505 Hudson Street
>
> Hartford, CT 06106
>
> Tel: 860-270-8025
>
> Fax: 860-707-1809
>
> E-mail: barbara.fernandez@ct.gov
>
> Π Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35.
>
> The grant did not allow to have the scanner placed in a state controlled facility. The grant did not mention where the equipment was to be placed. The state researched several locations, including state owned properties. The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts.
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready.
>
> My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but

would not have made a difference in the decision making. If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice. However, now you know the purpose of the grant and the reason for choosing the location.

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017. The equipment will be disposed following standard state of CT procedures. The grant ends in September 2017, no date has been set for the disposition of the equipment.

* The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works. The funds for the equipment come from the grant mentioned above, these are not state funds. The new piece of equipment is being placed at CCAT for the same reason stated above.

* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider. Grants are available based on job creation. The company must commit to creating NEW jobs before a grant will be considered.

* State supplied loans are available, at a rate comparable to commercial loans. Our loan rates are below commercial rates for most businesses.

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force. You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move. No mention was made of the UTRC, Pratt & Whitney and Air Force work.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter. Please correct me if any of my statements are not factual.

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. The grant did not allow to have the scanner placed in a state controlled facility. Other sites were under considering, like UConn's Technology Park but were not suitable or ready. My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making.

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works.

* No state grants are available to help offset the cost of the move of Bolton Works

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Sincerely,

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Mark Bliek - President

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Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**

Mobile [(860) 995-3087](tel:8609953087)

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
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Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

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Mobile (860) 995-3087<tel:(860)%20995-3087>

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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www.facebook.com/boltonworks>

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Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>

E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>
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From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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[Image removed by sender.] <http://www.facebook.com/boltonworks>

From:	Mark Bliek <mark.bliek@bolton-works.com>
Sent time:	05/09/2017 11:55:13 AM
To:	Fernandez, Barbara; Kollen, Bart; Rooslund, Tracey
Subject:	Re: Conflict of interest DECD CCAT Bolton Works

Hi Barbara, we are still on for our meeting at 1.30pm today?

Regards,

Mark Bliek - President

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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www.facebook.com/boltonworks>

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Hartford, CT 06106

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Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>
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[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

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To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
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From:	Mark Bliek <mark.bliek@bolton-works.com>
Sent time:	05/18/2017 08:56:57 PM
To:	Fernandez, Barbara; Kollen, Bart; Rooslund, Tracey
Subject:	Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter. Please correct me if any of my statements are not factual.

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. The grant did not allow to have the scanner placed in a state controlled facility. Other sites were under considering, like UConn's Technology Park but were not suitable or ready. My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making.

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works.

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans.

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

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Sent from my Windows Phone

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Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

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This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

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Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www.facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

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I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

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Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development

("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

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Tom, Don, Paul, ben.arsenault
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I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with

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From:	Smith, Catherine H
Sent time:	04/09/2017 03:18:05 PM
To:	Fernandez, Barbara; Gutierrez, Beatriz
Cc:	Kollen, Bart
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok can you set up time for us?

Sent from my Windows Phone

From: Gutierrez Beatriz
Sent: 4/8/2017 9:14 AM
To: Fernandez Barbara
Cc: Smith Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

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B

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
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Sent from my Windows Phone

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To: Fernandez Barbara
Cc: Smith, Catherine H; Gutierrez, Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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Mobile (860) 995-3087

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>
> Barbara Fernandez,Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford, CT 06106
> Tel: 860-270-8025
> Fax:860-707-1809
> E-mail: barbara.fernandez@ct.gov
> *Please consider the environment before printing*
> Connecticut
> still revolutionary
> Follow DECD
>
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> **Sent:** Saturday, March 18, 2017 8:06 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
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> **Mark Bliek - President**

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Mobile (860) 995-3087

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> **Bolton Works - Precision 3D Scanning**
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>
> **Phone (860) 646-3948**
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Tom, Don, Paul, ben.arsenault

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Mark Bliek - President

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409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

From:	Rooslund, Tracey
Sent time:	04/10/2017 03:41:56 PM
To:	Fernandez, Barbara; Gutierrez, Beatriz
Cc:	Kollen, Bart; Holbrook, Mayra S
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

No worries – what about April 13th at 10:30?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Monday, April 10, 2017 1:17 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Sorry just saw this.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/10/2017 6:19 AM
To: Gutierrez, Beatriz; Fernandez, Barbara
Cc: Kollen, Bart; Holbrook, Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

My error – I meant 10:30 today

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Rooslund, Tracey
Sent: Monday, April 10, 2017 7:39 AM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>; Fernandez, Barbara <Barbara.Fernandez@ct gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

How about 9:30 today, April 10th?

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860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Could you please set up time with Bart for Barbara and I to discuss?

Thanks!

B

Beatriz N. Gutiérrez
Executive Director
Office of Business Development
Department of Economic and Community Development

505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No I haven't, happy to do so. Agree this is really not our issue at all.

Sent from my Windows Phone

From: Smith Catherine H
Sent: 4/9/2017 1:18 PM
To: Fernandez, Barbara; Gutierrez, Beatriz
Cc: Kollen Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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> Tel: 860-270-8025
> Fax:860-707-1809
> E-mail: barbara.fernandez@ct.gov
>
> *Please consider the environment before printing*
> Connecticut
> still revolutionary
> Follow DECD
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Saturday, March 18, 2017 8:06 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Mrs Fernandez,
>
> This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs It is now my understanding that the equipment will be offered for sale, once the demonstration period ends At that time, Bolton Works would like to have the opportunity to bid on the equipment

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT I made clear that my concerns are as much with CCAT as DECD However, I also made it clear that I am not looking at the current situation from a legal perspective The DECD and CCAT might have the right to act as they did Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD

I would like to invite you to visit Bolton Works It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Dear Ms Smith,
>
> I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.
>
> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
>
> In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.
>
> In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.
>
> Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.
>
> I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.
>
> Sincerely,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> **----------**
>
> Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

From:	Kollen, Bart
Sent time:	04/18/2017 05:03:16 PM
To:	Fernandez, Barbara; Gutierrez, Beatriz
Cc:	Rooslund, Tracey
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Hi Barbara,

The memo from CCAT is very helpful. I think your offer to meet with them while still letting them know along the way, we are not a party to the discussion makes sense.

May 09 at 1:30 is open on my end, I would be happy to sit in the meeting if you would like.

Bart

Bart

Bart Kollen
Deputy Commissioner
Department of Economic and Community Development
505 Hudson Street, Hartford, CT 06106
860-270-8020 (o)
860-212-4438 (c)
www.DECD.org

Connecticut
still revolutionary

Please consider the environment before printing

From: Fernandez, Barbara
Sent: Tuesday, April 18, 2017 10:01 AM
To: Kollen, Bart <Bart.Kollen@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

Below is my communications with Mr. Bliek, I have not confirmed the May 9th date. Attached is a letter from CCAt describing the situation from their perspective. As I stated to Mr. Bliek, DECD has not standing in his conversations/negotiations with CCAT. Please advise on how I should proceed. Thank you

Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax: 860-707-1809
E-mail: barbara.fernandez@ct.gov
ƒÀ Please consider the environment before printing

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, April 11, 2017 7:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, Tuesday May 9th 1.30pm would work for me.

Looking forward to meet you.

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning

409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.
>
> I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.
>
> 4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.
>
> Looking forward to your reply,
>
> Regards,
>
> Mark Bliek - President
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118
>
> Phone (860) 646-3948<tel:(860)%20646-3948>
> Mobile (860) 995-3087<tel:(860)%20995-3087>
>
> Mark Bliek - President
>
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
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[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

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1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

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3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and

Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
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Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
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I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Rooslund, Tracey
Sent time:	04/11/2017 07 01:08 AM
To:	Fernandez, Barbara; Gutierrez, Beatriz
Cc:	Holbrook, Mayra S
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Bea – does this work for your calendar?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Monday, April 10, 2017 5:50 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

That works.

Sent from my Windows Phone

From: Rooslund Tracey
Sent: 4/10/2017 1:41 PM
To: Fernandez Barbara; Gutierrez Beatriz
Cc: Kollen Bart; Holbrook Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No worries – what about April 13th at 10:30?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Monday, April 10, 2017 1:17 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Sorry just saw this.

Sent from my Windows Phone

From: Rooslund, Tracey
Sent: 4/10/2017 6:19 AM
To: Gutierrez Beatriz; Fernandez Barbara
Cc: Kollen Bart; Holbrook Mayra S
Subject: RE: Conflict of interest DECD CCAT Bolton Works

My error – I meant 10:30 today

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Rooslund, Tracey
Sent: Monday, April 10, 2017 7:39 AM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>; Fernandez, Barbara <Barbara.Fernandez@ct gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Holbrook, Mayra S <Mayra S.Holbrook@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

How about 9:30 today, April 10th?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith

Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Could you please set up time with Bart for Barbara and I to discuss?

Thanks!

B

Beatriz N. Gutiérrez
Executive Director
Office of Business Development
Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No I haven't, happy to do so. Agree this is really not our issue at all.

Sent from my Windows Phone

From: Smith Catherine H
Sent: 4/9/2017 1:18 PM
To: Fernandez Barbara; Gutierrez Beatriz
Cc: Kollen Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>
Cc: Smith, Catherine H <Catherine Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok can you set up time for us?

Sent from my Windows Phone

From: Gutierrez Beatriz
Sent: 4/8/2017 9:14 AM
To: Fernandez Barbara
Cc: Smith Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

I think we should set some time with Catherine to get her direction on mex r steps before this escalates. Let's get Tracey to find some time.

B

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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Sent from my Windows Phone

From: Mark Bliek
Sent: 4/7/2017 12:12 PM
To: Fernandez Barbara
Cc: Smith, Catherine H; Gutierrez, Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs Fernandez, thanks for addressing my questions

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Looking forward to your reply,

Regards,

Mark Bliek - President

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Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
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East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Dear Mr. Bliek- Thank you for your e-mail follow-up.
>
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standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

Please consider the environment before printing
Connecticut
still revolutionary
Follow DECD

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017

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I would like to invite you to visit Bolton Works It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

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> Dear Ms Smith,
>
> I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.
>
> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
>
> In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.
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> In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.
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I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President

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Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities
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I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

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409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
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From:	Rooslund, Tracey
Sent time:	04/11/2017 10:38:46 AM
To:	Fernandez, Barbara
Cc:	Gutierrez, Beatriz; Holbrook, Mayra S; Kollen, Bart
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Bea said it was okay to speak to Bart without her as she has a conflict. So call Bart at Noon, thanks.

Cheers,

Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Tuesday, April 11, 2017 9:10 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Today at 12 works for me.

Sent from my Windows Phone

From: Gutierrez, Beatriz
Sent: Monday, April 10, 2017 7:00 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Tracey,

Could you please set up time with Bart for Barbara and I to discuss?

Thanks!

B

Beatriz N. Gutiérrez
Executive Director
Office of Business Development
Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)
To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Kollen, Bart" <Bart Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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From: Smith, Catherine H
Sent: 4/9/2017 1:18 PM
To: Fernandez, Barbara; Gutierrez, Beatriz
Cc: Kollen, Bart
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Have you discussed with Bart? This doesn't really seem like our issue, from the little I know about it

Catherine Smith

Commissioner
Department of Economic and Community Development
860-270-8010 (office)
860-801-4254 (cell)
www.decd.org

From: Fernandez, Barbara
Sent: Saturday, April 8, 2017 12 01 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct gov>

Cc: Smith, Catherine H <Catherine Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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From: Gutierrez, Beatriz
Sent: 4/8/2017 9:14 AM
To: Fernandez Barbara
Cc: Smith Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

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Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted A visit by you therefore would be appreciated I am available any time next week

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To: Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
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From:	Rooslund, Tracey
Sent time:	04/11/2017 11:27 07 AM
To:	Fernandez, Barbara
Cc:	Gutierrez, Beatriz; Holbrook, Mayra S; Kollen, Bart
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Thanks

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
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Deputy Commissioner Bart Kollen
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Sent: Tuesday, April 11, 2017 11 04 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok I will call 860 270 8020 at 12.

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Beatriz N. Gutiérrez
Executive Director
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Department of Economic and Community Development
505 Hudson Street
Hartford, CT 06106
office: 860-270-8013

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From: "Fernandez, Barbara" <Barbara.Fernandez@ct.gov>
Date: 4/9/2017 4:12 PM (GMT-05:00)

To: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
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Subject: RE: Conflict of interest DECD CCAT Bolton Works

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Catherine Smith

Commissioner
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> 505 Hudson Street
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> E-mail: barbara.fernandez@ct.gov
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> *Please consider the environment before printing*
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> Connecticut
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> Follow DECD
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Saturday, March 18, 2017 8:06 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Mrs Fernandez,
>
> This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017
>
> 1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs It is now my understanding that the equipment will be offered for sale, once the demonstration period ends At that time, Bolton Works would like to have the opportunity to bid on the equipment
>
> 2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works
>
> 3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT I made clear that my concerns are as much with CCAT as DECD However, I also made it clear that I am not looking at the current situation from a legal perspective The DECD and CCAT might have the right to act as they did Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD
>
> I would like to invite you to visit Bolton Works It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and

avoid potential conflicts of interest in the process

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Dear Ms Smith,
>
> I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.
>
> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
>
> In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.
>
> In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.
>
> Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.
>
> I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.
>
> Sincerely,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> **----------**
>
> Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

From:	Mark Bliek <mark.bliek@bolton-works.com>
Sent time:	04/11/2017 07:41:47 PM
To:	Fernandez, Barbara
Cc:	Smith, Catherine H; Gutierrez, Beatriz
Subject:	Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, Tuesday May 9th 1.30pm would work for me.

Looking forward to meet you.

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.

I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

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409 Silver Lane
East Hartford, CT 06118

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Mobile (860) 995-3087

[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director

Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>
P Please consider the environment before printing
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[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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Regards,

Mark Bliek - President
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409 Silver Lane
East Hartford, CT 06118

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Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
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Sincerely,

Mark Bliek - President
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Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
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access to our lab. Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

Note: Withheld pursuant to CGS § 52-146(r) and CGS § 1-210(b)(10) - Attorney/Client Privileged

From: Bakanas, Lisa G
Sent time: 02/07/2018 03:31:50 PM
To: Fernandez, Barbara
Cc: Gutierrez, Beatriz
Subject: RE: Conflict of interest DECD CCAT Bolton Works

[redacted]

Lisa G. Bakanas
General Counsel
Department of Economic and Community Development
450 Columbus Blvd., Suite 5
Hartford, CT 06103
(860) 500-2485
(860) 500-2440
Lisa.Bakanas@ct.gov

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Please consider the environment before printing this e-mail

From: Fernandez, Barbara
Sent: Wednesday, February 07, 2018 10:03 AM
To: Bakanas, Lisa G <Lisa.Bakanas@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

[redacted]

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Wednesday, February 07, 2018 9:37 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez,

Based on your response, my conclusions are that CCAT is either not reporting commercial use, or DECD is complicit in misuse of the funding of the equipment. Of course I find it highly unlikely DECD is involved in any way in such behavior.

At this time I'd like to inquire whether DECD is he appropriate entity to investigate this misuse and has immediate plans to do so or if there is another department to which I should request to take action. As you know the commercial use of this equipment is harmful to my business.

Thank you for your prompt reply.

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Feb 2, 2018 at 1:34 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I just responded to your 1/30/2017 email. Sorry for the late response. I hope this satisfies your questions concerning the equipment.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct gov
> Π Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Friday, February 02, 2018 1:11 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine Smith@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms Fernandez, while waiting for your reply, I postponed certain investments, as it is unclear to me, to what extent CCAT is allowed to use the earlier mentioned equipment provided by the state for commercial purposes I therefore hope to see a response soon to my email from January 30th soon

For your information, another twist to this ongoing saga emerged:
CCAT IT's divison is the only division with significant revenue growth over the past 5 years Apparently reason enough for CCAT to form a new, for profit subsidiary at the end of 2017 called Novus Insight After years of state and federal support, which purpose it is to assist Connecticut companies, Novus Insight is now challenging other IT businesses in Connecticut If CCAT is allowed to do this with their IT business, what stops them from forming a for profit entity, performing technical services, like Bolton Works?

DECD has sought out CCAT to participate in several advisory boards, responsible for allocating funds to help the businesses in Connecticut It appears that CCAT cynically uses that position to propose projects for its own well being, not necessarily for the business community at large in Connecticut This is witnessed by it's behavior towards my company, the violation of the inurement prohibition for non profits, the ongoing projects with questionable merit and aforementioned forming of Novus Insight

Sincerely,

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Jan 30, 2018 at 10:24 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Thanks again, so rules for CCAT to use the Atos 3D scanner and the North Star Imaging CT scanner installed for the ITC include:
>
> 1) Company for which the equipment is used needs to be Connecticut based and needs to be a defense manufacturer
> 2) The project needs to be a demonstration project for evaluation of the technology (versus a commercial service contract)
> 3) United Technology subsidiaries are not excluded, as long rules 1 and 2 apply
>
> Other uses would violate the contract between CCAT and DECD and would violate the conditions under which the Department of Defense Office of Economic Adjustment has made the funding available to DECD
>
> Please confirm,
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> On Mon, Jan 29, 2018 at 5:29 PM, Fernandez, Barbara <Barbara Fernandez@ct.gov> wrote:
>
> > Any equipment in the ITC, which is owned by the state of CT, is under the same rules.
> >
> > **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> > **Sent:** Monday, January 29, 2018 5:01 PM
> > **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> > **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> > **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
> >
> > Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 12:42 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.
>
> As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.
>
> An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.
>
> I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

Mark Bliek - President

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409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct.gov
> Π Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Tuesday, December 05, 2017 11:26 AM

To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
2011 Bolton Works acquires 2nd 3D scanner.
2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
2014 Bolton Works acquires 3rd 3D scanner
2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.
2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:
1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>

Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez,

Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
Is it still the intention of DECD to dispose of the scanner?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 505 Hudson Street
> Hartford CT 06106
> Tel: 860-270-8025
> Fax: 860-707-1809
> E-mail: barbara.fernandez@ct.gov
> ΠΙ Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35
>
> The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready
>
> My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location
>
> * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment
>
> * The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above
>
> * No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered
>
> * State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses
>
> * The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work
>
> Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
> The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Thursday, May 18, 2017 8:57 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms Fernandez, thanks for you visit on 5/9,
>
> This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual
>
> * The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> > I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
> >
> > Sent from my Windows Phone
> >
> > _____
> > From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> > Sent: 4/7/2017 12:12 PM
> > To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> > Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> > Subject: Re: Conflict of interest DECD CCAT Bolton Works
> >
> > Mrs. Fernandez, thanks for addressing my questions.
> >
> > 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.

I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

[https://docs.google com/uc?
export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
<http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www.facebook.com/pages/DECD/188972734470153>

[cid:image004.gif@01CD37FC.C1604310] <http://twitter com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook com/boltonworks>

From:	Rooslund, Tracey
Sent time:	04/25/2017 01:23:15 PM
To:	Fernandez, Barbara
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Is this all set? I'll need to reschedule a meeting on Bart's calendar, will you send an invite?

Cheerio,

Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Wednesday, April 19, 2017 3:47 PM
To: Kollen, Bart <Bart.Kollen@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Thank you- I will send an invite.

From: Kollen, Bart
Sent: Tuesday, April 18, 2017 5:03 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Hi Barbara,

The memo from CCAT is very helpful. I think your offer to meet with them while still letting them know along the way, we are not a party to the discussion makes sense.

May 09 at 1:30 is open on my end, I would be happy to sit in the meeting if you would like.

Bart

Bart

Bart Kollen
Deputy Commissioner
Department of Economic and Community Development
505 Hudson Street, Hartford, CT 06106
860-270-8020 (o)
860-212-4438 (c)
www.DECD.org

Connecticut
still revolutionary

Please consider the environment before printing

From: Fernandez, Barbara
Sent: Tuesday, April 18, 2017 10:01 AM
To: Kollen, Bart <Bart.Kollen@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

Below is my communications with Mr. Bliek, I have not confirmed the May 9th date. Attached is a letter from CCAt describing the situation from their perspective. As I stated to Mr. Bliek, DECD has not standing in his conversations/negotiations with CCAT. Please advise on how I should proceed. Thank you

Barbara Fernandez, Director
Business Development

Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax: 860-707-1809
E-mail: barbara.fernandez@ct.gov
ƒÀ Please consider the environment before printing

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, April 11, 2017 7:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, Tuesday May 9th 1.30pm would work for me.

Looking forward to meet you.

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

From: Mark Bliek<mailto mark.bliek@bolton-works.com>
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, thanks for addressing my questions.

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.

I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
<http://www facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

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This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

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Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

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I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

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I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
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409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
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Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

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Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Rooslund, Tracey
Sent time:	04/27/2017 12:13:59 PM
To:	Fernandez, Barbara
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

So … is this confirmed?

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Wednesday, April 19, 2017 3:47 PM
To: Kollen, Bart <Bart.Kollen@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Thank you- I will send an invite.

From: Kollen, Bart
Sent: Tuesday, April 18, 2017 5:03 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Hi Barbara,

The memo from CCAT is very helpful. I think your offer to meet with them while still letting them know along the way, we are not a party to the discussion makes sense.

May 09 at 1:30 is open on my end, I would be happy to sit in the meeting if you would like.

Bart

Bart

Bart Kollen
Deputy Commissioner
Department of Economic and Community Development
505 Hudson Street, Hartford, CT 06106
860-270-8020 (o)
860-212-4438 (c)
www.DECD.org

Connecticut
still revolutionary

Please consider the environment before printing

From: Fernandez, Barbara
Sent: Tuesday, April 18, 2017 10:01 AM
To: Kollen, Bart <Bart.Kollen@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

Below is my communications with Mr. Bliek, I have not confirmed the May 9th date. Attached is a letter from CCAt describing the situation from their perspective. As I stated to Mr. Bliek, DECD has not standing in his conversations/negotiations with CCAT. Please advise on how I should proceed. Thank you

Barbara Fernandez, Director
Business Development

Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax: 860-707-1809
E-mail: barbara.fernandez@ct.gov
ƒÀ Please consider the environment before printing

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, April 11, 2017 7:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, Tuesday May 9th 1.30pm would work for me.

Looking forward to meet you.

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

From: Mark Bliek<mailto mark.bliek@bolton-works.com>
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, thanks for addressing my questions.

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.

I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
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Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
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[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

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Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

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Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Rooslund, Tracey
Sent time:	04/28/2017 10:22:33 AM
To:	Fernandez, Barbara
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Thank you.

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Fernandez, Barbara
Sent: Friday, April 28, 2017 10:21 AM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

No problem- I have it

From: Rooslund, Tracey
Sent: Friday, April 28, 2017 10:04 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

See below – Bart is unable to attend, not sure why he said he could.

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Kollen, Bart
Sent: Thursday, April 27, 2017 5:48 PM
To: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

PleasE let Barbara know. Meeting with Sullivan has priority.

Sent via the Samsung GALAXY S® 5, an AT&T 4G LTE smartphone

-------- Original message --------
From: "Rooslund, Tracey" <Tracey.Rooslund@ct.gov>
Date: 4/27/17 2:20 PM (GMT-04:00)
To: "Kollen, Bart" <Bart.Kollen@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Bart – you have a conflict at 1:30 on May 9th - Insurance Reinvestment Act program meeting is scheduled at 1:00p

Cheerio,
Tracey Rooslund
860-270-8017
Executive Secretary to
Commissioner Catherine Smith
Deputy Commissioner Bart Kollen
Dept. of Economic & Community Development
505 Hudson Street, Hartford, CT 06106
Connecticut
still revolutionary

From: Kollen, Bart
Sent: Tuesday, April 18, 2017 5:03 PM

To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

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Bart

Bart

Bart Kollen
Deputy Commissioner
Department of Economic and Community Development
505 Hudson Street, Hartford, CT 06106
860-270-8020 (o)
860-212-4438 (c)
www.DECD.org

Connecticut
still revolutionary

Please consider the environment before printing

From: Fernandez, Barbara
Sent: Tuesday, April 18, 2017 10:01 AM
To: Kollen, Bart <Bart.Kollen@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

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Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax: 860-707-1809
E-mail: barbara.fernandez@ct.gov
Π Please consider the environment before printing

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, April 11, 2017 7:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, Tuesday May 9th 1.30pm would work for me.

Looking forward to meet you.

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

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>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
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> Regards,
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> Mark Bliek - President
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118
>
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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www facebook.com/boltonworks>

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Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
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[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

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Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

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I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

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Tom, Don, Paul, ben.arsenault
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I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

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[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Mark Bliek <mark.bliek@bolton-works.com>
Sent time:	08/30/2017 12:31:55 PM
To:	Fernandez, Barbara
Cc:	Kollen, Bart; Rooslund, Tracey
Subject:	Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez,

Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling? Is it still the intention of DECD to dispose of the scanner?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
>
> Business Development
>
> Dept. of Economic and Community Dev.
>
> 505 Hudson Street
>
> Hartford, CT 06106
>
> Tel: 860-270-8025
>
> Fax: 860-707-1809
>
> E-mail: barbara.fernandez@ct.gov
>
> ƒÀ Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35.
>
> The grant did not allow to have the scanner placed in a state controlled facility. The grant did not mention where the equipment was to be placed. The state researched several locations, including state owned properties. The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts.
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready.

My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making. If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice. However, now you know the purpose of the grant and the reason for choosing the location.

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017. The equipment will be disposed following standard state of CT procedures. The grant ends in September 2017, no date has been set for the disposition of the equipment.

* The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works. The funds for the equipment come from the grant mentioned above, these are not state funds. The new piece of equipment is being placed at CCAT for the same reason stated above.

* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider. Grants are available based on job creation. The company must commit to creating NEW jobs before a grant will be considered.

* State supplied loans are available, at a rate comparable to commercial loans. Our loan rates are below commercial rates for most businesses.

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force. You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move. No mention was made of the UTRC, Pratt & Whitney and Air Force work.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter. Please correct me if any of my statements are not factual.

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. The grant did not allow to have the scanner placed in a state controlled facility. Other sites were under considering, like UConn's Technology Park but were not suitable or ready. My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making.

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On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
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> **East Hartford, CT 06118**
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>
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
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Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
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[Image removed by sender.] <http://www.facebook.com/boltonworks>

From:	Mark Bliek <mark.bliek@bolton-works.com>
Sent time:	08/30/2017 01:09:28 PM
To:	Fernandez, Barbara
Cc:	Kollen, Bart; Rooslund, Tracey
Subject:	Re: Conflict of interest DECD CCAT Bolton Works

Ok, thanks for the update. Please keep me in the loop when a plan has been approved.

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
>
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
>
> Business Development
>
> Dept. of Economic and Community Dev.
>
> 505 Hudson Street
>
> Hartford, CT 06106
>
> Tel: 860-270-8025
>
> Fax: 860-707-1809
>
> E-mail: barbara.fernandez@ct.gov
>
> Π Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35.
>
> The grant did not allow to have the scanner placed in a state controlled facility. The grant did not mention where the equipment was to be placed. The state researched several locations, including state owned properties. The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts.
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready.
>
> My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making. If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice. However, now you know the purpose of the grant and the reason for choosing the location.
>
> * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017. The equipment will be disposed following standard state of CT procedures. The grant ends in September 2017, no date has been set for the disposition of the equipment.
>
> * The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works. The funds for the equipment come from the grant mentioned above, these are not state funds. The new piece of equipment is being placed at CCAT for the same reason stated above.
>
> * No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider. Grants are available based on job creation. The company must commit to creating NEW jobs before a grant will be considered.
>
> * State supplied loans are available, at a rate comparable to commercial loans. Our loan rates are below commercial rates for most businesses.
>
> * The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt &

Whitney and the Air Force. You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move. No mention was made of the UTRC, Pratt & Whitney and Air Force work.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter. Please correct me if any of my statements are not factual.

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. The grant did not allow to have the scanner placed in a state controlled facility. Other sites were under considering, like UConn's Technology Park but were not suitable or ready. My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making.

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works.

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans.

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**
>
> On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:
>
> > I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues.

Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

_____
From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, thanks for addressing my questions.

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.

I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

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Mobile (860) 995-3087

[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>
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[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www.facebook.com/pages/DECD/188972734470153> [cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the

DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab. Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

Note: Withheld pursuant to CGS § 52-146(r) and CGS § 1-210(b)(10) - Attorney/Client Privileged

From: Bakanas, Lisa G
Sent time: 02/07/2018 04:24:06 PM
To: Fernandez, Barbara
Cc: Gutierrez, Beatriz
Subject: RE: Conflict of interest DECD CCAT Bolton Works

[redacted]

Lisa G. Bakanas
General Counsel
Department of Economic and Community Development
450 Columbus Blvd., Suite 5
Hartford, CT 06103
(860) 500-2485
(860) 500-2440
Lisa.Bakanas@ct.gov

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Please consider the environment before printing this e-mail

From: Fernandez, Barbara
Sent: Wednesday, February 07, 2018 3:53 PM
To: Bakanas, Lisa G <Lisa.Bakanas@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

[redacted]

From: Bakanas, Lisa G
Sent: Wednesday, February 07, 2018 3:32 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

[redacted]

Lisa G. Bakanas
General Counsel
Department of Economic and Community Development
450 Columbus Blvd., Suite 5
Hartford, CT 06103
(860) 500-2485
(860) 500-2440
Lisa.Bakanas@ct.gov

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Please consider the environment before printing this e-mail

From: Fernandez, Barbara
Sent: Wednesday, February 07, 2018 10:03 AM
To: Bakanas, Lisa G <Lisa.Bakanas@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

[redacted]

Note: Withheld pursuant to CGS § 52-146(r) and CGS § 1-210(b)(10) - Attorney/Client Privileged

[redacted]

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Wednesday, February 07, 2018 9:37 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez,

Based on your response, my conclusions are that CCAT is either not reporting commercial use, or DECD is complicit in misuse of the funding of the equipment. Of course I find it highly unlikely DECD is involved in any way in such behavior.

At this time I'd like to inquire whether DECD is he appropriate entity to investigate this misuse and has immediate plans to do so or if there is another department to which I should request to take action. As you know the commercial use of this equipment is harmful to my business.

Thank you for your prompt reply.

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Feb 2, 2018 at 1:34 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I just responded to your 1/30/2017 email. Sorry for the late response. I hope this satisfies your questions concerning the equipment.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct gov
> Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Friday, February 02, 2018 1:11 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine Smith@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Ms Fernandez, while waiting for your reply, I postponed certain investments, as it is unclear to me, to what extent CCAT is allowed to use the earlier mentioned equipment provided by the state for commercial purposes I therefore hope to see a response soon to my email from January 30th soon
>
> For your information, another twist to this ongoing saga emerged:
> CCAT IT's divison is the only division with significant revenue growth over the past 5 years Apparently reason enough for CCAT to form a new, for profit subsidiary at the end of 2017 called Novus Insight After years of state and federal support, which purpose it is to assist Connecticut companies, Novus Insight is now challenging other IT businesses in Connecticut If CCAT is allowed to do this with their IT business, what stops them from forming a for profit entity, performing technical services, like Bolton Works?
>
> DECD has sought out CCAT to participate in several advisory boards, responsible for allocating funds to help the businesses in Connecticut It appears that CCAT cynically uses that position to propose projects for its own well being, not necessarily for the business community at large in Connecticut This is witnessed by it's behavior towards my company, the violation of the inurement prohibition for non profits, the ongoing projects with questionable merit and aforementioned forming of Novus Insight
>
> Sincerely,
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**

East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Jan 30, 2018 at 10:24 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Thanks again, so rules for CCAT to use the Atos 3D scanner and the North Star Imaging CT scanner installed for the ITC include:
>
> 1) Company for which the equipment is used needs to be Connecticut based and needs to be a defense manufacturer
> 2) The project needs to be a demonstration project for evaluation of the technology (versus a commercial service contract)
> 3) United Technology subsidiaries are not excluded, as long rules 1 and 2 apply
>
> Other uses would violate the contract between CCAT and DECD and would violate the conditions under which the Department of Defense Office of Economic Adjustment has made the funding available to DECD
>
> Please confirm,
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Mon, Jan 29, 2018 at 5:29 PM, Fernandez, Barbara <Barbara Fernandez@ct.gov> wrote:

> Any equipment in the ITC, which is owned by the state of CT, is under the same rules.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 5:01 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 12:42 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.
>
> As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.
>
> An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.
>
> I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct.gov
> ΠΙ Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Tuesday, December 05, 2017 11:26 AM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez,
>
> This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
> Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:
>
> 2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
> 2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
> 2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
> 2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
> 2011 Bolton Works acquires 2nd 3D scanner.
> 2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
> 2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
> 2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
> 2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
> 2014 Bolton Works acquires 3rd 3D scanner
> 2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.
> 2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
> 2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
> 2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.

2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:

1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
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4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:
>
> > Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
> >
> > Barbara Fernandez, Director
> > Business Development
> > Dept. of Economic and Community Dev.
> > 505 Hudson Street
> > Hartford CT 06106
> > Tel: 860-270-8025
> > Fax: 860-707-1809
> > E-mail: barbara.fernandez@ct.gov
> > Π Please consider the environment before printing

The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35

The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts

Other sites were under considering, like UConn's Technology Park but were not suitable or ready

My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above

* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered

* State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

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* State supplied loans are available, at a rate comparable to commercial loans

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Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.
>
> I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.
>
> 4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.
>
> Looking forward to your reply,
>
> Regards,
>
> Mark Bliek - President
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118
>
> Phone (860) 646-3948<tel:(860)%20646-3948>
> Mobile (860) 995-3087<tel:(860)%20995-3087>
>
> Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

[https://docs.google com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www.facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook com/boltonworks>

From:	Mark Bliek <mark.bliek@bolton-works.com>
Sent time:	12/05/2017 11:25:40 AM
To:	Fernandez, Barbara
Cc:	Kollen, Bart; Rooslund, Tracey
Subject:	Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

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Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
>
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
>
> Business Development
>
> Dept. of Economic and Community Dev.
>
> 505 Hudson Street
>
> Hartford, CT 06106
>
> Tel: 860-270-8025
>
> Fax: 860-707-1809
>
> E-mail: barbara.fernandez@ct.gov
>
> Π Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35.
>
> The grant did not allow to have the scanner placed in a state controlled facility. The grant did not mention where the equipment was to be placed. The state researched several locations, including state owned properties. The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts.
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready.
>
> My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making. If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice. However, now you know the purpose of the grant and the reason for choosing the location.
>
> * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017. The equipment will be disposed following standard state of CT procedures. The grant ends in September 2017, no date has been set for the disposition of the equipment.
>
> * The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works. The funds for the equipment come from the grant mentioned above, these are not state funds. The new piece of equipment is being placed at CCAT for the same reason stated above.
>
> * No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider. Grants are available based on job creation. The company must commit to creating NEW jobs before a grant will be considered.
>
> * State supplied loans are available, at a rate comparable to commercial loans. Our loan rates are below commercial rates for most businesses.
>
> * The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt &

Whitney and the Air Force. You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move. No mention was made of the UTRC, Pratt & Whitney and Air Force work.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter. Please correct me if any of my statements are not factual.

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. The grant did not allow to have the scanner placed in a state controlled facility. Other sites were under considering, like UConn's Technology Park but were not suitable or ready. My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making.

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works.

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans.

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**
>
> On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:
>
> > I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues.

Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

_____
From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, thanks for addressing my questions.

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.

I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www.facebook.com/pages/DECD/188972734470153> [cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the

DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab. Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

From:	Smith, Catherine H
Sent time:	01/30/2018 09:40:44 AM
To:	Fernandez, Barbara
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

ok

Catherine Smith

Commissioner
Department of Economic and Community Development
860-500-2310 (office); 860-801-4254 (cell)
450 Columbus Blvd., Suite 5, Hartford, CT 06103
Connecticut
still revolutionary
www.DECD.org
Please consider the environment before printing

From: Fernandez, Barbara
Sent: Tuesday, January 30, 2018 9:25 AM
To: Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Being handled- at the end of the day he needs to settle his issues with CCAT.

From: Smith, Catherine H
Sent: Tuesday, January 30, 2018 8:52 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

Trust you are handling this, but happy to discuss if that would be helpful.

Catherine Smith

Commissioner
Department of Economic and Community Development
860-500-2310 (office); 860-801-4254 (cell)
450 Columbus Blvd., Suite 5, Hartford, CT 06103
Connecticut
still revolutionary
www.DECD.org
Please consider the environment before printing

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Monday, January 29, 2018 12:42 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.

As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.

An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.

I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct.gov
> ΠΙ Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Tuesday, December 05, 2017 11:26 AM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez,
>
> This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
> Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:
>
> 2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
> 2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
> 2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
> 2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
> 2011 Bolton Works acquires 2nd 3D scanner.
> 2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
> 2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
> 2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
> 2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
> 2014 Bolton Works acquires 3rd 3D scanner
> 2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.
> 2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
> 2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
> 2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
> 2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
> 2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
> 2017 Announcement by UTRC to install CT scanner in its new facility
> 2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:

1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
> Business Development

Dept. of Economic and Community Dev.
505 Hudson Street
Hartford CT 06106
Tel: 860-270-8025
Fax: 860-707-1809
E-mail: barbara.fernandez@ct.gov
Π Please consider the environment before printing

The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35

The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts

Other sites were under considering, like UConn's Technology Park but were not suitable or ready

My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above

* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered

* State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

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Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> ---
> From: Mark Bliek<mailto mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.
>
> I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.
>
> 4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

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Mobile (860) 995-3087

[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct gov<mailto:Barbara Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www facebook.com/pages/DECD/188972734470153>
[cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto mark.bliek@bolton-works.com<mailto mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault

[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www facebook.com/boltonworks>

From:	Mark Bliek <mark.bliek@bolton-works.com>
Sent time:	01/29/2018 12:42:17 PM
To:	Fernandez, Barbara
Cc:	Kollen, Bart; Rooslund, Tracey; Smith, Catherine H
Subject:	Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.

As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.

An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.

I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

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409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
>
> Business Development
>
> Dept. of Economic and Community Dev.
>
> 450 Columbus Boulevard/South Tower,Suite 5

Hartford, CT 06103-1843

Tel: 860-500-2325

E-mail: barbara.fernandez@ct.gov

ƒÀ Please consider the environment before printing

See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, December 05, 2017 11:26 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.

Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner

2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.

2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.

2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.

2011 Bolton Works acquires 2nd 3D scanner.

2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.

2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.

2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.

2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).

2014 Bolton Works acquires 3rd 3D scanner

2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.

2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.

2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.

2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.

2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.

2017 Installation of Northstar Imaging CT scanner by CCAT/DECD

2017 Announcement by UTRC to install CT scanner in its new facility

2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:

1) CCAT - access to State equipment and funding to promote itself and services

2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT

3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)

4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT

5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.

Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.

The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
>
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
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> Barbara Fernandez, Director
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> Business Development
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> Dept. of Economic and Community Dev.
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> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35.
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> The grant did not allow to have the scanner placed in a state controlled facility. The grant did not mention where the equipment was to be placed. The state researched several locations, including state owned properties. The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts.
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> Other sites were under considering, like UConn's Technology Park but were not suitable or ready.
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> My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making. If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice. However, now you know the purpose of the grant and the reason for choosing the location.
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> * The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works. The funds for the equipment come from the grant mentioned above, these are not state funds. The new piece of equipment is being placed at CCAT for the same reason stated above.
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> * No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider. Grants are available based on job creation. The company must commit to creating NEW jobs before a grant will be considered.
>
> * State supplied loans are available, at a rate comparable to commercial loans. Our loan rates are below commercial rates for most businesses.
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> * The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt

& Whitney and the Air Force. You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move. No mention was made of the UTRC, Pratt & Whitney and Air Force work.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter. Please correct me if any of my statements are not factual.

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. The grant did not allow to have the scanner placed in a state controlled facility. Other sites were under considering, like UConn's Technology Park but were not suitable or ready. My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making.

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works.

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans.

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> > I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address

any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

_____
From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, thanks for addressing my questions.

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.

I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www.facebook.com/pages/DECD/188972734470153> [cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private

sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab. Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

From:	Mark Bliek <mark.bliek@bolton-works.com>
Sent time:	01/29/2018 05:01:19 PM
To:	Fernandez, Barbara
Cc:	Kollen, Bart; Rooslund, Tracey
Subject:	Re: Conflict of interest DECD CCAT Bolton Works

Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 12:42 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.
>
> As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.
>
> An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.
>
> I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
>
> Business Development
>
> Dept. of Economic and Community Dev.
>
> 450 Columbus Boulevard/South Tower,Suite 5
>
> Hartford, CT 06103-1843
>
> Tel: 860-500-2325
>
> E-mail: barbara.fernandez@ct.gov
>
> Π Please consider the environment before printing

See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, December 05, 2017 11:26 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.

Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner

2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.

2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.

2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.

2011 Bolton Works acquires 2nd 3D scanner.

2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.

2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.

2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.

2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).

2014 Bolton Works acquires 3rd 3D scanner

2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.

2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.

2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.

2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.

2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.

2017 Installation of Northstar Imaging CT scanner by CCAT/DECD

2017 Announcement by UTRC to install CT scanner in its new facility

2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:

1) CCAT - access to State equipment and funding to promote itself and services

2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT

3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)

4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT

5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.

Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.

The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
>
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
>
> Business Development
>
> Dept. of Economic and Community Dev.
>
> 505 Hudson Street
>
> Hartford, CT 06106
>
> Tel: 860-270-8025
>
> Fax: 860-707-1809
>
> E-mail: barbara.fernandez@ct.gov
>
> IT Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35.
>
> The grant did not allow to have the scanner placed in a state controlled facility. The grant did not mention where the equipment was to be placed. The state researched several locations, including state owned properties. The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts.
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready.
>
> My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making. If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice. However, now you know the purpose of the grant and the reason for choosing the location.
>
> * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017. The equipment will be disposed following standard state of CT procedures. The grant ends in September 2017, no date has been set for the disposition of the equipment.
>
> * The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works. The funds for the equipment come from the grant mentioned above, these are not state funds. The new piece of equipment is being placed at CCAT for the same reason stated above.
>
> * No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider. Grants are available based on job creation. The company must commit to creating NEW jobs before a grant will be considered.
>
> * State supplied loans are available, at a rate comparable to commercial loans. Our loan rates are below commercial rates for most businesses.
>
> * The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force. You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move. No mention was made of the UTRC, Pratt & Whitney and Air Force work.
>
> Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter. Please correct me if any of my statements are not factual.

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. The grant did not allow to have the scanner placed in a state controlled facility. Other sites were under considering, like UConn's Technology Park but were not suitable or ready. My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making.

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works.

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans.

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

Sincerely,

Mark Bliek - President

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409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> > I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
> >
> > Sent from my Windows Phone

From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, thanks for addressing my questions.

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.

I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www.facebook.com/pages/DECD/188972734470153> [cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding

that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab. Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

From:	Mark Bliek <mark.bliek@bolton-works.com>
Sent time:	01/30/2018 10:24:49 AM
To:	Fernandez, Barbara
Cc:	Kollen, Bart; Rooslund, Tracey
Subject:	Re: Conflict of interest DECD CCAT Bolton Works

Thanks again, so rules for CCAT to use the Atos 3D scanner and the North Star Imaging CT scanner installed for the ITC include:

1) Company for which the equipment is used needs to be Connecticut based and needs to be a defense manufacturer
2) The project needs to be a demonstration project for evaluation of the technology (versus a commercial service contract)
3) United Technology subsidiaries are not excluded, as long rules 1 and 2 apply

Other uses would violate the contract between CCAT and DECD and would violate the conditions under which the Department of Defense Office of Economic Adjustment has made the funding available to DECD

Please confirm,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Jan 29, 2018 at 5:29 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Any equipment in the ITC, which is owned by the state of CT, is under the same rules.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 5:01 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**

Phone (860) 646-3948

Mobile (860) 995-3087

On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 12:42 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.
>
> As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.
>
> An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.
>
> I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone** (860) 646-3948
>
> **Mobile** (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
>
> Business Development
>
> Dept. of Economic and Community Dev.
>
> 450 Columbus Boulevard/South Tower,Suite 5
>
> Hartford, CT 06103-1843
>
> Tel: 860-500-2325
>
> E-mail: barbara.fernandez@ct.gov
>
> Π Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Tuesday, December 05, 2017 11:26 AM

To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.

Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner

2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.

2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.

2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.

2011 Bolton Works acquires 2nd 3D scanner.

2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.

2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.

2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.

2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).

2014 Bolton Works acquires 3rd 3D scanner

2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.

2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.

2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.

2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.

2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.

2017 Installation of Northstar Imaging CT scanner by CCAT/DECD

2017 Announcement by UTRC to install CT scanner in its new facility

2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:

1) CCAT - access to State equipment and funding to promote itself and services

2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT

3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)

4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT

5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.

Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.

The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
>
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
>
> Business Development

Dept. of Economic and Community Dev.

505 Hudson Street

Hartford, CT 06106

Tel: 860-270-8025

Fax: 860-707-1809

E-mail: barbara.fernandez@ct.gov

Π Please consider the environment before printing

The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35.

The grant did not allow to have the scanner placed in a state controlled facility. The grant did not mention where the equipment was to be placed. The state researched several locations, including state owned properties. The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts.

Other sites were under considering, like UConn's Technology Park but were not suitable or ready.

My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making. If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice. However, now you know the purpose of the grant and the reason for choosing the location.

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017. The equipment will be disposed following standard state of CT procedures. The grant ends in September 2017, no date has been set for the disposition of the equipment.

* The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works. The funds for the equipment come from the grant mentioned above, these are not state funds. The new piece of equipment is being placed at CCAT for the same reason stated above.

* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider. Grants are available based on job creation. The company must commit to creating NEW jobs before a grant will be considered.

* State supplied loans are available, at a rate comparable to commercial loans. Our loan rates are below commercial rates for most businesses.

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force. You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move. No mention was made of the UTRC, Pratt & Whitney and Air Force work.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter. Please correct me if any of my statements are not factual.

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. The grant did not allow to have the scanner placed in a state controlled facility. Other sites were under considering, like UConn's Technology Park but were not suitable or ready. My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making.

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works.

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans.

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> ---
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
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Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

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[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ] <http://www.facebook.com/boltonworks>

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Business Development
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505 Hudson Street
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Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>
P Please consider the environment before printing
[cid:image002.png@01CD37FC.C1604310]
Follow DECD [cid:image003.gif@01CD37FC.C1604310] <http://www.facebook.com/pages/DECD/188972734470153> [cid:image004.gif@01CD37FC.C1604310] <http://twitter.com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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From:	Mark Bliek <mark bliek@bolton-works com>
Sent time:	04/07/2017 12:12:39 PM
To:	Fernandez, Barbara
Cc:	Smith, Catherine H; Gutierrez, Beatriz
Subject:	Re: Conflict of interest DECD CCAT Bolton Works
Attachments:	20170405_203009 jpg

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Tel: 860-270-8025

Fax:860-707-1809

E-mail: barbara.fernandez@ct.gov

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Connecticut
still revolutionary

Follow DECD

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Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
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Bolton Works
EXIT

From:	Gutierrez, Beatriz
Sent time:	04/08/2017 11:14:19 AM
To:	Fernandez, Barbara
Cc:	Smith, Catherine H
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

I think we should set some time with Catherine to get her direction on mex r steps before this escalates. Let's get Tracey to find some time.

B

-------- Original message --------
From: "Fernandez, Barbara" <Barbara Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

From: Mark Bliek
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To: Fernandez Barbara
Cc: Smith Catherine H; Gutierrez Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

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> Connecticut
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Mobile (860) 995-3087

Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities

I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD

This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center

I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

From:	Mark Bliek <mark.bliek@bolton-works.com>
Sent time:	02/07/2018 09:36:44 AM
To:	Fernandez, Barbara
Cc:	Smith, Catherine H; Kollen, Bart; Rooslund, Tracey
Subject:	Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez,

Based on your response, my conclusions are that CCAT is either not reporting commercial use, or DECD is complicit in misuse of the funding of the equipment. Of course I find it highly unlikely DECD is involved in any way in such behavior.

At this time I'd like to inquire whether DECD is the appropriate entity to investigate this misuse and has immediate plans to do so or if there is another department to which I should request to take action. As you know the commercial use of this equipment is harmful to my business.

Thank you for your prompt reply.

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Feb 2, 2018 at 1:34 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I just responded to your 1/30/2017 email. Sorry for the late response. I hope this satisfies your questions concerning the equipment.
>
> Barbara Fernandez, Director
>
> Business Development
>
> Dept. of Economic and Community Dev.
>
> 450 Columbus Boulevard/South Tower,Suite 5
>
> Hartford, CT 06103-1843
>
> Tel: 860-500-2325
>
> E-mail: barbara.fernandez@ct.gov
>
> ƒÀ Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Friday, February 02, 2018 1:11 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez, while waiting for your reply, I postponed certain investments, as it is unclear to me, to what extent CCAT is allowed to use the earlier mentioned equipment provided by the state for commercial purposes. I therefore hope to see a response soon to my email from January 30th soon.

For your information, another twist to this ongoing saga emerged:

CCAT IT's divison is the only division with significant revenue growth over the past 5 years. Apparently reason enough for CCAT to form a new, for profit subsidiary at the end of 2017 called Novus Insight. After years of state and federal support, which purpose it is to assist Connecticut companies, Novus Insight is now challenging other IT businesses in Connecticut. If CCAT is allowed to do this with their IT business, what stops them from forming a for profit entity, performing technical services, like Bolton Works?

DECD has sought out CCAT to participate in several advisory boards, responsible for allocating funds to help the businesses in Connecticut. It appears that CCAT cynically uses that position to propose projects for its own well being, not necessarily for the business community at large in Connecticut. This is witnessed by it's behavior towards my company, the violation of the inurement prohibition for non profits, the ongoing projects with questionable merit and aforementioned forming of Novus Insight.

Sincerely,

Bolton Works - Precision 3D Scanning

409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, Jan 30, 2018 at 10:24 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Thanks again, so rules for CCAT to use the Atos 3D scanner and the North Star Imaging CT scanner installed for the ITC include:
>
> 1) Company for which the equipment is used needs to be Connecticut based and needs to be a defense manufacturer
>
> 2) The project needs to be a demonstration project for evaluation of the technology (versus a commercial service contract)
>
> 3) United Technology subsidiaries are not excluded, as long rules 1 and 2 apply
>
> Other uses would violate the contract between CCAT and DECD and would violate the conditions under which the Department of Defense Office of Economic Adjustment has made the funding available to DECD
>
> Please confirm,
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**

On Mon, Jan 29, 2018 at 5:29 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Any equipment in the ITC, which is owned by the state of CT, is under the same rules.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 5:01 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>

Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 12:42 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.
>
> As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.
>
> An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.

I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
>
> Business Development
>
> Dept. of Economic and Community Dev.
>
> 450 Columbus Boulevard/South Tower,Suite 5
>
> Hartford, CT 06103-1843

Tel: 860-500-2325

E-mail: barbara.fernandez@ct.gov

Π Please consider the environment before printing

See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, December 05, 2017 11:26 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.

Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner

2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.

2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.

2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.

2011 Bolton Works acquires 2nd 3D scanner.

2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.

2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.

2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir

Mannan is still employed by CCAT.

2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).

2014 Bolton Works acquires 3rd 3D scanner

2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.

2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.

2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.

2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.

2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.

2017 Installation of Northstar Imaging CT scanner by CCAT/DECD

2017 Announcement by UTRC to install CT scanner in its new facility

2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:

1) CCAT - access to State equipment and funding to promote itself and services

2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT

3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)

4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT

5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.

Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.

The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine)

services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
>
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
>
> Barbara Fernandez, Director
>
> Business Development
>
> Dept. of Economic and Community Dev.
>
> 505 Hudson Street
>
> Hartford, CT 06106
>
> Tel: 860-270-8025
>
> Fax: 860-707-1809
>
> E-mail: barbara.fernandez@ct.gov
>
> Π Please consider the environment before printing
>
> ---
>
> The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35.
>
> The grant did not allow to have the scanner placed in a state controlled facility. The grant did not mention where the equipment was to be placed. The state researched several locations, including state owned properties. The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts.
>
> Other sites were under considering, like UConn's Technology Park but were not suitable or ready.
>
> My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making. If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice. However, now you know the purpose of the grant and the reason for choosing the location.
>
> * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017. The equipment will be disposed following standard state of CT procedures. The grant ends in September 2017, no date has been set for the disposition of the equipment.
>
> * The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and

Bolton Works. The funds for the equipment come from the grant mentioned above, these are not state funds. The new piece of equipment is being placed at CCAT for the same reason stated above.

* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider. Grants are available based on job creation. The company must commit to creating NEW jobs before a grant will be considered.

* State supplied loans are available, at a rate comparable to commercial loans. Our loan rates are below commercial rates for most businesses.

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force. You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move. No mention was made of the UTRC, Pratt & Whitney and Air Force work.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms. Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter. Please correct me if any of my statements are not factual.

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant. The grant did not allow to have the scanner placed in a state controlled facility. Other sites were under considering, like UConn's Technology Park but were not suitable or ready. My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making.

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway. The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works.

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans.

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force.

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost.

The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space. I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business.

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.
>
> I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.
>
> 4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.
>
> Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

[https://docs.google.com/uc?export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
<http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara.fernandez@ct.gov>
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From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse

engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in

capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab. Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook.com/boltonworks>

From:	Gutierrez, Beatriz
Sent time:	04/08/2017 02:52 03 PM
To:	Fernandez, Barbara
Cc:	Smith, Catherine H
Subject:	RE: Conflict of interest DECD CCAT Bolton Works

Sure. When are you back?

B

Beatriz N. Gutiérrez

Executive Director

Office of Business Development

Department of Economic and Community Development

505 Hudson Street

Hartford, CT 06106

office: 860-270-8013

-------- Original message --------
From: "Fernandez, Barbara" <Barbara Fernandez@ct.gov>
Date: 4/8/2017 12:01 PM (GMT-05:00)
To: "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Ok can you set up time for us?

Sent from my Windows Phone

From: Gutierrez, Beatriz
Sent: 4/8/2017 9:14 AM
To: Fernandez, Barbara
Cc: Smith, Catherine H
Subject: RE: Conflict of interest DECD CCAT Bolton Works

Barbara,

I think we should set some time with Catherine to get her direction on mex r steps before this escalates. Let's get Tracey to find some time.

B

-------- Original message --------
From: "Fernandez, Barbara" <Barbara Fernandez@ct.gov>
Date: 4/7/2017 12:25 PM (GMT-05:00)
To: Mark Bliek <mark.bliek@bolton-works.com>
Cc: "Smith, Catherine H" <Catherine.Smith@ct.gov>, "Gutierrez, Beatriz" <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

From: Mark Bliek
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara
Cc: Smith, Catherine H; Gutierrez, Beatriz
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs Fernandez, thanks for addressing my questions

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated CCAT administers the Manufacturing Innovation Fund Voucher Program for the state I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants Bolton Works, which received a grant in 2009 administered by CCAT, is an example

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,

I received notice to vacate the building on March 6th 2017 Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture Needless to say we are past the point of reconciliation

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted A visit by you therefore would be appreciated I am available any time next week

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara Fernandez@ct.gov> wrote:

> Dear Mr. Bliek- Thank you for your e-mail follow-up.
>
> 1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
>
> This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.
>
> 2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
>
> The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
>
> Massachusetts.
>
> As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director

Business Development

Dept. of Economic and Community Dev.

505 Hudson Street

Hartford, CT 06106

Tel: 860-270-8025

Fax:860-707-1809

E-mail: barbara.fernandez@ct.gov

Please consider the environment before printing

Connecticut
still revolutionary

Follow DECD

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs It is now my understanding that the equipment will be offered for sale, once the demonstration period ends At that time, Bolton Works would like to have the opportunity to bid on the equipment

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT I made clear that my concerns are as much with CCAT as DECD However, I also made it clear that I am not looking at the current situation from a legal perspective The DECD and CCAT might have the right to act as they did Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD

I would like to invite you to visit Bolton Works It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process

Looking forward to your reply,

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Dear Ms Smith,
>
> I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.
>
> Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.
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> In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.
>
> In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.
>
> Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.
>
> I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.
>
> Sincerely,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
>
> **Mobile (860) 995-3087**
>
> ---

Tom, Don, Paul, ben.arsenault

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January I voiced my concerns about having competing services delivered on our doorstep I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities

I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD

This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center

I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest

I would therefore suggest the following We have more than 10 years experience in Metrology using high end 3D scanners Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine We already work with Pratt & Whitney and major suppliers to the turbine industry We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948

Mobile (860) 995-3087

Note: Withheld pursuant to CGS § 52-146(r) and CGS § 1-210(b)(10) - Attorney/Client Privileged

From: Fernandez, Barbara
Sent time: 02/07/2018 03:53:02 PM
To: Bakanas, Lisa G
Cc: Gutierrez, Beatriz
Subject: RE: Conflict of interest DECD CCAT Bolton Works
Attachments: ITC Marketing Flyer E rev docx

[redacted]

From: Bakanas, Lisa G
Sent: Wednesday, February 07, 2018 3:32 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

[redacted]

Lisa G. Bakanas
General Counsel
Department of Economic and Community Development
450 Columbus Blvd., Suite 5
Hartford, CT 06103
(860) 500-2485
(860) 500-2440
Lisa.Bakanas@ct.gov

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Please consider the environment before printing this e-mail

From: Fernandez, Barbara
Sent: Wednesday, February 07, 2018 10:03 AM
To: Bakanas, Lisa G <Lisa.Bakanas@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

[redacted]

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Wednesday, February 07, 2018 9:37 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez,

Based on your response, my conclusions are that CCAT is either not reporting commercial use, or DECD is complicit in misuse of the funding of the equipment. Of course I find it highly unlikely DECD is involved in any way in such behavior.

At this time I'd like to inquire whether DECD is he appropriate entity to investigate this misuse and has immediate plans to do so or if there is another department to which I should request to take action. As you know the commercial use of this equipment is harmful to my business.

Thank you for your prompt reply.

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane

East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Feb 2, 2018 at 1:34 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I just responded to your 1/30/2017 email. Sorry for the late response. I hope this satisfies your questions concerning the equipment.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct gov
> Π Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Friday, February 02, 2018 1:11 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine Smith@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms Fernandez, while waiting for your reply, I postponed certain investments, as it is unclear to me, to what extent CCAT is allowed to use the earlier mentioned equipment provided by the state for commercial purposes I therefore hope to see a response soon to my email from January 30th soon

For your information, another twist to this ongoing saga emerged:
CCAT IT's divison is the only division with significant revenue growth over the past 5 years Apparently reason enough for CCAT to form a new, for profit subsidiary at the end of 2017 called Novus Insight After years of state and federal support, which purpose it is to assist Connecticut companies, Novus Insight is now challenging other IT businesses in Connecticut If CCAT is allowed to do this with their IT business, what stops them from forming a for profit entity, performing technical services, like Bolton Works?

DECD has sought out CCAT to participate in several advisory boards, responsible for allocating funds to help the businesses in Connecticut It appears that CCAT cynically uses that position to propose projects for its own well being, not necessarily for the business community at large in Connecticut This is witnessed by it's behavior towards my company, the violation of the inurement prohibition for non profits, the ongoing projects with questionable merit and aforementioned forming of Novus Insight

Sincerely,

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Jan 30, 2018 at 10:24 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Thanks again, so rules for CCAT to use the Atos 3D scanner and the North Star Imaging CT scanner installed for the ITC include:
>
> 1) Company for which the equipment is used needs to be Connecticut based and needs to be a defense manufacturer
> 2) The project needs to be a demonstration project for evaluation of the technology (versus a commercial service contract)
> 3) United Technology subsidiaries are not excluded, as long rules 1 and 2 apply
>
> Other uses would violate the contract between CCAT and DECD and would violate the conditions under which the Department of Defense Office of Economic Adjustment has made the funding available to DECD
>
> Please confirm,
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**

409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Mon, Jan 29, 2018 at 5:29 PM, Fernandez, Barbara <Barbara Fernandez@ct.gov> wrote:

> Any equipment in the ITC, which is owned by the state of CT, is under the same rules.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 5:01 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Monday, January 29, 2018 12:42 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.
>
> As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.
>
> An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.
>
> I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
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> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.

Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
450 Columbus Boulevard/South Tower,Suite 5
Hartford, CT 06103-1843
Tel: 860-500-2325
E-mail: barbara.fernandez@ct.gov
Π Please consider the environment before printing

See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Tuesday, December 05, 2017 11:26 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez,

This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:

2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
2011 Bolton Works acquires 2nd 3D scanner.
2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
2014 Bolton Works acquires 3rd 3D scanner
2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.
2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:
1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:
>
> > Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
> >
> > Barbara Fernandez, Director
> > Business Development
> > Dept. of Economic and Community Dev.
> > 505 Hudson Street
> > Hartford CT 06106
> > Tel: 860-270-8025
> > Fax: 860-707-1809
> > E-mail: barbara.fernandez@ct.gov
> > Π Please consider the environment before printing
> >
> > ---
> >
> > The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35
> >
> > The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts
> >
> > Other sites were under considering, like UConn's Technology Park but were not suitable or ready
> >
> > My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location
> >
> > * The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment
> >
> > * The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above
> >
> > * No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered
> >
> > * State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses
> >
> > * The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force

work

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.

Sent from my Windows Phone

_____
From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
Sent: 4/7/2017 12:12 PM
To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Mrs. Fernandez, thanks for addressing my questions.

1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment

2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.

3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.

I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.

4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
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Mobile (860) 995-3087

[https://docs.google com/uc?
export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
<http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared

with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
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[cid:image004.gif@01CD37FC.C1604310] <http://twitter com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning

equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook com/boltonworks>

Innovation Technology Center (ITC)

The State of Connecticut is looking for Connecticut defense manufacturers who want to evaluate if Structured Light Scanning (SLS) technology works for them. CT manufacturers can have a Demonstration Project performed at the newly constructed ITC. The ITC is sponsored by the Department of Defense Office of Economic Adjustment and the Connecticut Department of Economic and Community Development. The ITC is 1000 ft^2 of lab space managed by the Connecticut Center for Advanced Technology Inc. (CCAT) in East Hartford. There is no cost to participate.

WHAT IS A DEMONSTRATION PROJECT?
A demonstration project will allow CT manufacturers to evaluate structured light scanning technology against technologies (CMM or manual inspections) they are currently using. This will be done by using new technology on real parts and comparing results to what suppliers currently are achieving. A Structured Light Scanning Demonstration Project will allow suppliers to have one of their own manufactured parts scanned using the structured, blue light scanner available at the ITC:

- The GOM ATOS Scanbox 5108 is an optical 3D measuring machine developed for quality control in larger production and manufacturing processes. It is a non-contact, fully automated (robotic) inspection tool using blue light technology. (GOM Website)

CCAT personnel will provide assistance in operating the equipment and documenting results. CCAT will work with suppliers to develop a test plan and test report format so that results from the new technology can be compared directly to results from the current technology being used by the supplier.

WHY DO AN SLS DEMONSTRATION PROJECT AT THE ITC?

- Mechanical measuring machines capture data in a point-based or linear manner while optical 3D coordinate measuring systems provide full-field deviations of 3D actual coordinates and CAD data
- The GOM ATOS machine is one example of optical scanning technology
- Compare new technology capabilities to current technology capabilities
- Evaluate impact on effectiveness, efficiency and productivity of new technology
- A Demonstration Project is FREE to CT defense manufacturers

A Non-Disclosure Agreement (NDA) can be executed to protect the manufacturer's process knowledge. CCAT is an ITAR controlled facility.

HOW DO I APPLY?
Contact Mr. Wayne Sumple at CCAT.

Wayne Sumple
CCAT's Advanced Manufacturing Center
409 Silver Lane
East Hartford, CT. 06118
wsumple@ccat.us

DEMONSTRATION PROJECT PROCESS

1. CT manufacturer to sign Non-Disclosure Agreement (NDA)
2. CT manufacturer to sign Export Control Intake Certification (ECIC)
3. CT manufacturer to complete Assistance Application for Structured Light Scanning
    a. Describe part(s) to be scanned
        i. Name of part
        ii. # of parts
        iii. Special handling instructions
    b. STRUCTURED LIGHT SCANNING (SLS)
        i. Identify data to be gathered during SLS demonstration project
            1. Time to process
            2. Cost to process - material consumed during process
            3. Metrology criteria – list of specific measurements or dimensional values required for evaluation of SLS
            4. Comparison of new measurements or dimensional values generated with SLS in the ITC to existing data taken by the SME at their facility
            5. Shipping/receiving instructions
    c. Provide format for report data
    d. Identify how part(s) will be delivered to/from ITC
        i. Supplier to hand carry to ITC
        ii. Supplier to ship to ITC

Note: Withheld pursuant to CGS § 52-146(r) and CGS § 1-210(b)(10) - Attorney/Client Privileged

From: Fernandez, Barbara
Sent time: 02/07/2018 04:26:07 PM
To: Bakanas, Lisa G
Cc: Gutierrez, Beatriz
Subject: RE: Conflict of interest DECD CCAT Bolton Works

[redacted]

From: Bakanas, Lisa G
Sent: Wednesday, February 07, 2018 4:24 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

[redacted]

Lisa G. Bakanas
General Counsel
Department of Economic and Community Development
450 Columbus Blvd., Suite 5
Hartford, CT 06103
(860) 500-2485
(860) 500-2440
Lisa.Bakanas@ct.gov

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Please consider the environment before printing this e-mail

From: Fernandez, Barbara
Sent: Wednesday, February 07, 2018 3:53 PM
To: Bakanas, Lisa G <Lisa.Bakanas@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

[redacted]

From: Bakanas, Lisa G
Sent: Wednesday, February 07, 2018 3:32 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: RE: Conflict of interest DECD CCAT Bolton Works

[redacted]

Lisa G. Bakanas
General Counsel
Department of Economic and Community Development
450 Columbus Blvd., Suite 5
Hartford, CT 06103
(860) 500-2485
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Lisa.Bakanas@ct.gov

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From: Fernandez, Barbara
Sent: Wednesday, February 07, 2018 10:03 AM
To: Bakanas, Lisa G <Lisa.Bakanas@ct.gov>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: FW: Conflict of interest DECD CCAT Bolton Works

[redacted]

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Wednesday, February 07, 2018 9:37 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Cc: Smith, Catherine H <Catherine.Smith@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Ms. Fernandez,

Based on your response, my conclusions are that CCAT is either not reporting commercial use, or DECD is complicit in misuse of the funding of the equipment. Of course I find it highly unlikely DECD is involved in any way in such behavior.

At this time I'd like to inquire whether DECD is he appropriate entity to investigate this misuse and has immediate plans to do so or if there is another department to which I should request to take action. As you know the commercial use of this equipment is harmful to my business.

Thank you for your prompt reply.

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Fri, Feb 2, 2018 at 1:34 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I just responded to your 1/30/2017 email. Sorry for the late response. I hope this satisfies your questions concerning the equipment.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct gov
> Π Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Friday, February 02, 2018 1:11 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct gov>; Smith, Catherine H <Catherine Smith@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Ms Fernandez, while waiting for your reply, I postponed certain investments, as it is unclear to me, to what extent CCAT is allowed to use the earlier mentioned equipment provided by the state for commercial purposes I therefore hope to see a response soon to my email from January 30th soon
>
> For your information, another twist to this ongoing saga emerged:
> CCAT IT's divison is the only division with significant revenue growth over the past 5 years Apparently reason enough for CCAT to form a new, for profit subsidiary at the end of 2017 called Novus Insight After years of state and federal support, which purpose it is to assist Connecticut companies, Novus Insight is now challenging other IT businesses in Connecticut If CCAT is allowed to do this with their IT business, what stops them from forming a for profit entity, performing technical services, like Bolton Works?
>
> DECD has sought out CCAT to participate in several advisory boards, responsible for allocating funds to help the businesses in Connecticut It appears that CCAT cynically uses that position to propose projects for its own well being, not necessarily for the business community at large in Connecticut This is witnessed by it's behavior towards my company, the violation of the inurement prohibition for non profits, the ongoing projects with questionable merit and aforementioned forming of Novus Insight
>
> Sincerely,
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Jan 30, 2018 at 10:24 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Thanks again, so rules for CCAT to use the Atos 3D scanner and the North Star Imaging CT scanner installed for the ITC include:
>
> 1) Company for which the equipment is used needs to be Connecticut based and needs to be a defense manufacturer
> 2) The project needs to be a demonstration project for evaluation of the technology (versus a commercial service contract)
> 3) United Technology subsidiaries are not excluded, as long rules 1 and 2 apply
>
> Other uses would violate the contract between CCAT and DECD and would violate the conditions under which the Department of Defense Office of Economic Adjustment has made the funding available to DECD
>
> Please confirm,
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone** (860) 646-3948
> **Mobile** (860) 995-3087
>
> On Mon, Jan 29, 2018 at 5:29 PM, Fernandez, Barbara <Barbara Fernandez@ct.gov> wrote:
>
> > Any equipment in the ITC, which is owned by the state of CT, is under the same rules.
> >
> > **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> > **Sent:** Monday, January 29, 2018 5:01 PM
> > **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> > **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> > **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
> >
> > Thanks for the quick response. What are the arrangements for the Northstar Imaging CT scanner?
> >
> > Regards,
> >
> > **Mark Bliek - President**
> >
> > **Bolton Works - Precision 3D Scanning**
> > **409 Silver Lane**
> > **East Hartford, CT 06118**
> >
> > **Phone** (860) 646-3948
> > **Mobile** (860) 995-3087
> >
> > On Mon, Jan 29, 2018 at 4:42 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:
> >
> > > Mr. Bliek- Attached is a description of what CCAT is authorized to do under the current contract. This contract expires 4/30/2018. The equipment is owned by the state of CT and we are currently evaluating options consistent with our state procurement procedures.
> > >
> > > **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> > > **Sent:** Monday, January 29, 2018 12:42 PM
> > > **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> > > **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>; Smith, Catherine H <Catherine.Smith@ct.gov>
> > > **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
> > >
> > > Ms. Fernandez, as stated in my previous email I have concerns about the potential conflicts of interest in the way CCAT operates.
> > >
> > > As the 3D scanning equipment supplied by the state is still operational at CCAT, I do need a better understanding what the goals are for this equipment. If the equipment is used to assist the supply chain, I have difficulties envisioning how that is the case and in my opinion is ill advised.

An even bigger concern to me is whether CCAT can use that equipment to engage with and accept commercial projects from the OEM's (as supposed to the supply chain). For future investments by Bolton Works, I need to understand whether or not CCAT is competing for the same customers as Bolton Works using this equipment, as this will affect my decision making.

I would appreciate an answer to the following question: is CCAT allowed to use the DECD supplied 3D scanning equipment to perform commercial work for companies like any of the United Technology subsidiaries?

Regards,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, Dec 5, 2017 at 5:33 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> The Dept. of Defense has extended our contract until April 2018. We will determine the disposition of the equipment at that time.
>
> Barbara Fernandez, Director
> Business Development
> Dept. of Economic and Community Dev.
> 450 Columbus Boulevard/South Tower,Suite 5
> Hartford, CT 06103-1843
> Tel: 860-500-2325
> E-mail: barbara.fernandez@ct.gov
> Please consider the environment before printing
>
> See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Tuesday, December 05, 2017 11:26 AM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez,
>
> This email is a follow-up on earlier conversations in regards to DECD plans for the Innovation Technology Center and the support by the State of Connecticut for CCAT.
> Reason for this email is the continued interference by CCAT and DECD in the course of my business of which below a summary:
>
> 2005 Bolton Works acquires 1st Steinbichler 3D Structured Light scanner for inspection and reverse engineering service, installed in the CCAT Advanced Manufacturing Center. Bolton Works also signs agreement with Steinbichler to resell scanner
> 2006 CCAT hires Nasir Mannan to start develop a lower cost alternative to the higher end structured light scanners, like the one Bolton Works is reselling.
> 2007 Tom Scotton is hired by CCAT to, among others, promote the sale of the CCAT developed structured light scanner.
> 2009 Bolton Works invests in a coordinate measuring machine for inspection purposes and correlation studies for the 3D scanner. At the same time a robot is installed for the automated scanning.
> 2011 Bolton Works acquires 2nd 3D scanner.
> 2011 Assurance given by CCAT not to compete with Bolton Works for 3D scanning services.
> 2013 Tom Scotton, no longer employed by CCAT, starts own company Digital Manufacturing Services. 3D scanning and reverse engineering is part of it's portfolio. Digital Manufacturing Services and CCAT continue to collaborate, the extent of which is unclear to me.
> 2013 CCAT employee Nasir Mannan starts its own company with the goal to develop and sell 3D scanners. Nasir Mannan is still employed by CCAT.
> 2013 Bolton Works asks CCAT about unoccupied space in order for Bolton Works to expand. Instead, space is leased to company developing solar panels. When space became vacant again, it is leased to DECD (ITC).
> 2014 Bolton Works acquires 3rd 3D scanner
> 2013-2015 Discussions with UTRC to install CT scanner at Bolton Works, using my experience at a company developing software applications for CT scanners. UTRC however is not willing to commit to using the services and plan is shelved.

2015 Bolton Works is invited to participate in an Air Force funded research project, spearheaded by CCAT related to 3D scanning. Compelling reason for Bolton Works to join is participation by Pratt & Whitney, East Hartford. 2 Months into project, announcement is made that Pratt & Whitney and CCAT are not able to come to an agreement and Pratt & Whitney pulls out.
2016 Concerns raised by Bolton Works in regards to planned opening of ITC by DECD in CCAT building. In a follow up meeting with CCAT, concern raised in regards to 75% discount offered by CCAT for services identical to those offered by Bolton Works to companies in New England. Discount is paid for by participating states.
2016 Installation and promotion of GOM ATOS Structured Light scanner by CCAT/DECD.
2017 Opportunities re-surface to install CT scanner at Bolton Works. Mention my intentions to Tom Maloney of CCAT to acquire CT scanner. 4 Days after that discussion, Bolton Works was notified that CCAT needed space and an eviction process has started since.
2017 Installation of Northstar Imaging CT scanner by CCAT/DECD
2017 Announcement by UTRC to install CT scanner in its new facility
2017 Announcement by Northstar Imaging to open a center in Massachusetts for CT scan services serving the North East

As a consequence of CCAT actions and DECD supporting role in those, Bolton Works is now competing with 5 organizations which directly or indirectly receive preferential treatment by the State:
1) CCAT - access to State equipment and funding to promote itself and services
2) Digital Manufacturing Services, Tom Scotton. Former employee of CCAT had access to CCAT database of contacts and still actively involved with CCAT
3) M3DI.com – Nasir Mannen is still employed by CCAT receiving the same benefits as 3)
4) Capture 3D – State invests in equipment and provides free advertising for its products and services through CCAT
5) North Star Imaging - State invests in equipment and provides free advertising for its products and services through CCAT

On top of this CCAT is trying to push Bolton Works out of its current location, which will have a negative impact on the orders received from by UTRC and Pratt & Whitney.
Although I was told by you that the 3D structured light scanner placed in the ITC last year was going to be disposed of, it is still here and advertised in recently developed CCAT's brochures.
The only area we have not yet seen interference by CCAT is in the offering of CMM (Coordinate Measuring Machine) services.

In light of these developments, I cannot commit to relocate my business to make room for the ITC (at a considerable cost to Bolton Works), as I don't have a clear picture what the intentions are of both CCAT and DECD as it relates to metrology and reverse engineering services.

Please advise,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Wed, Aug 30, 2017 at 12:59 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> Hello- As I explained since the equipment is state property it has to be disposed based on state procurement rules. We are still working on a plan which has to be approved by DAS.
>
> **From:** Mark Bliek [mailto:mark.bliek@bolton-works.com]
> **Sent:** Wednesday, August 30, 2017 12:32 PM
> **To:** Fernandez, Barbara <Barbara.Fernandez@ct.gov>
> **Cc:** Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
> **Subject:** Re: Conflict of interest DECD CCAT Bolton Works
>
> Dear Ms. Fernandez,
>
> Could you inform me what the funding status is of the Atos GOM 3D scanner situated next to our facility in the CCAT buidling?
> Is it still the intention of DECD to dispose of the scanner?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**
>
> On Fri, May 19, 2017 at 9:29 AM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:
>
> > Mr. Bliek, thank you for taking the time to show me your operation and review your plans for the future on May 9, 2017. Below you will find my corrections to your summary (in blue)
> >
> > Barbara Fernandez, Director
> > Business Development

Dept. of Economic and Community Dev.
505 Hudson Street
Hartford CT 06106
Tel: 860-270-8025
Fax: 860-707-1809
E-mail: barbara.fernandez@ct.gov
Π Please consider the environment before printing

The funding to place a scanner in the CCAT building last year came from the state through an air-force grant It is grant from the Department of Defense, specifically focused on helping aerospace supply chain companies working on the F-35

The grant did not allow to have the scanner placed in a state controlled facility The grant did not mention where the equipment was to be placed The state researched several locations, including state owned properties The CCAT location was chosen because it already has the infrastructure to handle this type of equipment and it can handle ITAR controlled parts

Other sites were under considering, like UConn's Technology Park but were not suitable or ready

My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making If we had known of your objections we would have explained earlier the purpose of the ITC so that you would understand the reasoning for the choice However, now you know the purpose of the grant and the reason for choosing the location

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017 The equipment will be disposed following standard state of CT procedures The grant ends in September 2017, no date has been set for the disposition of the equipment

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would affect my business as this is according to DECD a matter between CCAT and Bolton Works The funds for the equipment come from the grant mentioned above, these are not state funds The new piece of equipment is being placed at CCAT for the same reason stated above

* No state grants are available to help offset the cost of the move of Bolton Works The state has the Small Business Express program that you might consider Grants are available based on job creation The company must commit to creating NEW jobs before a grant will be considered

* State supplied loans are available, at a rate comparable to commercial loans Our loan rates are below commercial rates for most businesses

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force You stated that the cost of moving would make a profitable year into a loss based on your estimates of the move No mention was made of the UTRC, Pratt & Whitney and Air Force work

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

From: Mark Bliek [mailto:mark.bliek@bolton-works.com]
Sent: Thursday, May 18, 2017 8:57 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Kollen, Bart <Bart.Kollen@ct.gov>; Rooslund, Tracey <Tracey.Rooslund@ct.gov>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Ms Fernandez, thanks for you visit on 5/9,

This email serves to summarize our discussion and make my position clear on this matter Please correct me if any of my statements are not factual

* The funding to place a scanner in the CCAT building last year came from the state through an air-force grant The grant did not allow to have the scanner placed in a state controlled facility Other sites were under considering, like UConn's Technology Park but were not suitable or ready My objections to the placement of the scanner next door to my scanning facility in the CCAT building, were unknown to you, but would not have made a difference in the decision making

* The funding for the 1st scanner will be ending shortly and the equipment is to be sold through the regular state surplus channels around September 2017

* The placement of a second scanner, requiring more space, is now underway The scanner is again funded by the state and without given consideration how this would effect my business as this is according to DECD a matter between CCAT and Bolton Works

* No state grants are available to help offset the cost of the move of Bolton Works

* State supplied loans are available, at a rate comparable to commercial loans

* The move of Bolton Works this year might turn an otherwise profitable year into a loss and interferes with work we do for UTRC, Pratt & Whitney and the Air Force

Bolton Works is now in the bizar situation of being evicted from the CCAT building to make room for a state funded facility, the Innovation Technology Center, performing the same kind of services, be it without credentials and at a much higher cost
The Innovation Technology Center is a facility setup by DECD and to not discuss with me in a timely matter what DECD intentions are with the Innovation Technology Center has me now scrambling to find new space I fail to understand the attitude by DECD to completely ignore the existence of Bolton Works and wave any responsibility how its actions affect my business

Sincerely,

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane

East Hartford, CT 06118

Phone (860) 646-3948
Mobile (860) 995-3087

On Tue, May 9, 2017 at 11:55 AM, Mark Bliek <mark.bliek@bolton-works.com> wrote:

> Hi Barbara, we are still on for our meeting at 1.30pm today?
>
> Regards,
>
> **Mark Bliek - President**
>
> **Bolton Works - Precision 3D Scanning**
> **409 Silver Lane**
> **East Hartford, CT 06118**
>
> **Phone (860) 646-3948**
> **Mobile (860) 995-3087**

On Fri, Apr 7, 2017 at 12:25 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov> wrote:

> I would be happy to meet with you to discuss Bolton Works and your plans for your company. I am available the second week in May. The disposition of the equipment of the technology center will be done in accordance to state procedures. The communication of that disposition will also follow the standard state process. As I stated before DECD and the state of Connecticut has no standing in your discussions/ arrangements with CCAT so I cannot address any of those issues. Please let me know if the second week in May works for you . Thank you.
>
> Sent from my Windows Phone
>
> _____
> From: Mark Bliek<mailto:mark.bliek@bolton-works.com>
> Sent: 4/7/2017 12:12 PM
> To: Fernandez, Barbara<mailto:Barbara.Fernandez@ct.gov>
> Cc: Smith, Catherine H<mailto:Catherine.Smith@ct.gov>; Gutierrez, Beatriz<mailto:Beatriz.Gutierrez@ct.gov>
> Subject: Re: Conflict of interest DECD CCAT Bolton Works
>
> Mrs. Fernandez, thanks for addressing my questions.
>
> 1) Please notify me when a decision is made on the disposition of the GOM ATOS 3D scanning equipment
>
> 2) My concerns about subsidies (or support, for lack of a better term) offered by the state to CCAT, are not eliminated. CCAT administers the Manufacturing Innovation Fund Voucher Program for the state. I would think that the state does not allow CCAT to use the funds they administer to be spend on services offered by CCAT themselves. The program, however, gives CCAT insight into other technology companies and gives CCAT access to a wealth of potential customers. There is apparently nothing which prevents CCAT from competing with the same companies for which they are administering grants. Bolton Works, which received a grant in 2009 administered by CCAT, is an example.
>
> 3) CCAT staff members and myself had a contentious meeting in June, 2016, concerning the message I sent at the bottom of this email. In the opinion of CCAT, I should have consulted them first before including Ben Arsenault in my message. My concerns however, where never brought up with DECD by CCAT and I felt justified in sending out the email. In regards to CCAT becoming a competitor to Bolton Works, the answer during that meeting was that if I was uncomfortable with the current situation, I should find another place to rent for my business. If I would consult with DECD before talking to CCAT, CCAT would be more than happy to have Capture 3D take my spot in the building,.
>
> I received notice to vacate the building on March 6th 2017. Although not leasing space in the CCAT building, Capture 3D was demonstrating yesterday their wares in front of my lab in the CCAT building, see attached picture. Needless to say we are past the point of reconciliation.
>
> 4) I think it would be opportune for both Bolton Works and DECD to understand where DECD's Technology Innovation Center and Bolton Works are headed, so no resources are wasted. A visit by you therefore would be appreciated. I am available any time next week.
>
> Looking forward to your reply,
>
> Regards,
>
> Mark Bliek - President
> Bolton Works - Precision 3D Scanning
> 409 Silver Lane
> East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Mark Bliek - President

Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

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Mobile (860) 995-3087

[https://docs.google com/uc?
export=download&id=0BymOixUwn8SpXzBGbHhKVVU4bnM&revid=0BymOixUwn8SpUE8rbC9TN1VGcWU0V3NsY3ZBbWdSNEF5dU9FPQ]
<http://www.facebook.com/boltonworks>

On Mon, Mar 20, 2017 at 4:46 PM, Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>> wrote:
Dear Mr. Bliek- Thank you for your e-mail follow-up.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment
This equipment is owned by the state and will be disposed in accordance to state policy and procedures. No decision has been made as to its disposition.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.
The state of CT does not provide CCAT with subsidies, we don't know what the federal government provides. The information you shared with me relates to a project CCAT is doing with
Massachusetts.

As I stated before DECD is not a party to your agreement with CCAT, my only advice is for you to reach some agreement with them. From your description this is a long standing partnership, I am sure you can meet each other half way. I would be happy to visit your operation to learn about your business but I cannot comment on your discussions with CCAT.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025<tel:(860)%20270-8025>
Fax:860-707-1809<tel:(860)%20707-1809>
E-mail: barbara.fernandez@ct.gov<mailto:barbara fernandez@ct.gov>
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[cid:image004.gif@01CD37FC.C1604310] <http://twitter com/#!/CTDECD>

From: Mark Bliek [mailto:mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>]
Sent: Saturday, March 18, 2017 8:06 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov<mailto:Barbara.Fernandez@ct.gov>>; Smith, Catherine H <Catherine.Smith@ct.gov<mailto:Catherine.Smith@ct.gov>>
Subject: Re: Conflict of interest DECD CCAT Bolton Works

Dear Mrs. Fernandez,

This email is a follow up on our phone conversation last Thursday 3/9/2017, in response to my email to DECD commissioner Catherine Smith from 3/7/2017.

1) We discussed my concern in regards to the the GOM ATOS 3D scanning equipment currently located in the DECD Innovation Technology Center at CCAT and located next to Bolton Works labs. It is now my understanding that the equipment will be offered for sale, once the demonstration period ends. At that time, Bolton Works would like to have the opportunity to bid on the equipment.

2) DECD would look further into my concern that CCAT is using state/federal subsidies to offer a discount for services which are directly competing with services offered by Bolton Works.

3) In regards to CCAT's decision to end the lease for Bolton Works, at a moment that it becomes apparent that the interest of CCAT and Bolton Works are competing, you raised the question if Bolton Works would take legal action against CCAT. I made clear that my concerns are as much with CCAT as DECD. However, I also made it clear that I am not looking at the current situation from a legal perspective. The DECD and CCAT might have the right to act as they did. Nonetheless, it does raise questions if those actions have consequences which are not in line with the mission of DECD.

I would like to invite you to visit Bolton Works. It would give me the opportunity to explain where Bolton Works sees future expansion, how DECD and Bolton Works could support each others goals and avoid potential conflicts of interest in the process.

Looking forward to your reply,

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook com/boltonworks>

On Tue, Mar 7, 2017 at 2:06 PM, Mark Bliek <mark.bliek@bolton-works.com<mailto:mark.bliek@bolton-works.com>> wrote:
Dear Ms Smith,

I am the owner of Bolton Works, LLC, a Connecticut provider of dimensional inspection and reverse engineering services to the aerospace industry. To provide these services, Bolton Works has heavily invested in 3D scanning technology.

Bolton Works has been, since 2005, providing such services from within space leased to it by the Connecticut Center for Advanced Technology, Inc. ("CCAT") at CCAT's facility located at 409 Silver Lane, East Hartford.

In 2016, Bolton Works learned that the State of Connecticut Department of Economic and Community Development ("DECD") intended to open the Innovation technology Center ("ITC") from within CCAT's facility, see email exchange below. The ITC, which was opened in approximately the summer of 2016, is supposed to be a demonstration metrology lab using scanning equipment purchased by the DECD from Capture 3D. Although CCAT initially assured me that the ITC would not function as a competitor to Bolton Works, the future of the state-purchased equipment remains unclear. If the scanning equipment is provided to CCAT or any other competitor of Bolton Works without charge, the DECD will have unfairly subsidized Bolton Works's competitors and undermined the essential mission of the DECD to assist in business development and expansion.

In addition, CCAT, which originally claimed to refrain from competition with Bolton Works, now provides directly competitive services. In doing so, CCAT receives a state subsidy for services for which Bolton Works must charge a market rate. This subsidy creates a competitive pricing advantage which neither Bolton Works nor any other private sector company can overcome.

Finally, in February 2017, Bolton Works inquired of the DECD whether state assistance was available to purchase Computer Tomography ("CT") technology in order to expand its services. Shortly thereafter, I learned that CCAT intends to seek government funds to purchase equipment to provide CT services. When I inquired of CCAT and informed them of Bolton Works' intentions with respect to CT services, Bolton Works was informed – within days – that it needed to vacate CCAT's facility in order for CCAT to manufacture carbon fiber components.

I am writing to you to request a meeting with the DECD in order to explore and seek solutions to the conflicts of interest existing at and the competitive advantages provided to the Connecticut Center for Advanced Technology.

Sincerely,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

Tom, Don, Paul, ben.arsenault
[Image removed by sender.]

Tom, we discussed the setup of a metrology facilty on behalf of DECD in the CCAT building in January. I voiced my concerns about having competing services delivered on our doorstep. I received re-assurance that the equipment supplied by Hexagon going into the lab was not equivalent to Bolton Works capabilities and therefore no treat to our activities.
I received similar re-assurances of not competing in 2011, in a meeting with several CCAT staf members.

Apparently the situation has changed since January as I received word that a high end scanner similar in capabilities to what is already installed at Bolton Works will be installed in the space of DECD.
This gives reason for pause as Bolton Works is currently exchanging know how with CCAT and provides CCAT un-restricted access to our lab.
Furthermore, for 10 years all the clients from Bolton Works have registered with CCAT in order to enter the Advanced Manufacturing Center.
I know that CCAT as an organization who's mantra it is to assist Connecticut businesses would like to avoid a potential conflict of interest.

I would therefore suggest the following. We have more than 10 years experience in Metrology using high end 3D scanners. Bolton works has been involved in more than 1000 scanning projects, concerning more than 9000 parts/objects, the majority used in the turbine industry and covering almost every aspect of a jet engine. We already work with Pratt & Whitney and major suppliers to the turbine industry. We have a CMM in house which we

installed to correlate the scan data and proof the accuracy of the 3 scanners we use. As we are situated next to the DECD lab, should Bolton Works not be involved? I would think, with our track record, we would be the ideal candidate to run the equipment and assist CCAT and DECD to promote the technology.

Regards,

Mark Bliek - President
Bolton Works - Precision 3D Scanning
409 Silver Lane
East Hartford, CT 06118

Phone (860) 646-3948<tel:(860)%20646-3948>
Mobile (860) 995-3087<tel:(860)%20995-3087>

[Image removed by sender.] <http://www.facebook com/boltonworks>

From:	Russo, Deborah
Sent time:	03/21/2016 02:08:51 PM
To:	Molina-Rios, Carmen
Subject:	RE: DECD Equipment Purchase - Task 5

Really Draper???

In order to purchase the correct system we will need from Draper a full description for the GOM Atos Triple Scan 16M robotic automation system and how much that will cost.

Deborah Russo, CD Specialist
Department of Economic and Community Development
Office of Business and Industry Development
505 Hudson Street
Hartford, CT 06106
Phone: (860) 270-8223
Fax: (860) 707-1809
E-mail: deborah.russo@ct.gov

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From: Molina-Rios, Carmen
Sent: Friday, March 18, 2016 3:18 PM
To: 'Brindley, William J PW'; Tong, Kun PW; DRESCHER, JOSEPH D PW
Cc: Gutierrez, Beatriz; Russo, Deborah
Subject: DECD Equipment Purchase - Task 5

Good Afternoon Everyone,

Please see attached the spec for the ATOS Triple Scan 16M. Please confirm for us that this is the system utilized by PW as the Blue Light production system that has been qualified.

Thank you again for your time and helping us understand they equipment/technology better.

Regards,

Carmen

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, March 15, 2016 4:41 PM
To: 'Brindley, William J PW' <William.Brindley@pw.utc.com>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Wittstein, Bryan E. <bwittstein@draper.com>; Russo, Deborah <Deborah.Russo@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov>; Holmes, Steven M. <sholmes@draper.com>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>; Tong, Kun PW <Kun.Tong@pw.utc.com>; 'Don Balducci' <dbalducci@ccat.us>
Cc: 'Tom Maloney' <tmaloney@ccat.us>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Subject: DECD Equipment Purchase - Task 5

Good Afternoon Everyone,

Thank you again for your time this afternoon. It was extremely helpful to have everyone's perspective. As we discussed, Draper Labs will provide DECD with the spec and cost for the GOM Atos Triple Scan equipment. Once we receive that I will be sure to send out an email to the group to confirm that we heard you right and we are all on the same page prior to DECD acquiring the equipment.

Thank you again for your support of DECD and the OEA Grant.

Carmen

Carmen Molina-Rios
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860.270.8234
Fax: 860.707.1809
Email: Carmen.Molinarios@ct.gov

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From:	Holmes, Steven M. <sholmes@draper.com>
Sent time:	03/16/2016 10:02:20 AM
To:	Molina-Rios, Carmen
Cc:	Wittstein, Bryan E. <bwittstein@draper.com>
Subject:	RE: DECD Equipment Purchase - Task 5
Attachments:	GOM Atos Triple Scan Recommendation.pptx

Carmen,

Attached is a single PowerPoint slide summarizing the ATOS Tripe Scan 16M. This system was part of our original trade space.

Steve

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, March 15, 2016 4:41 PM
To: 'Brindley, William J PW' <William.Brindley@pw.utc.com>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Wittstein, Bryan E. <bwittstein@draper.com>; Russo, Deborah <Deborah.Russo@ct.gov>; Holbrook, Mayra S <Mayra.S.Holbrook@ct.gov>; Holmes, Steven M. <sholmes@draper.com>; DRESCHER, JOSEPH D PW <joseph.drescher@pw.utc.com>; Tong, Kun PW <Kun.Tong@pw.utc.com>; 'Don Balducci' <dbalducci@ccat.us>
Cc: 'Tom Maloney' <tmaloney@ccat.us>; Fernandez, Barbara <Barbara.Fernandez@ct.gov>
Subject: DECD Equipment Purchase - Task 5

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Carmen

Carmen Molina-Rios
Dept. of Economic and Community Dev.
505 Hudson Street
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Tel: 860.270.8234
Fax: 860.707.1809
Email: Carmen.Molinarios@ct.gov

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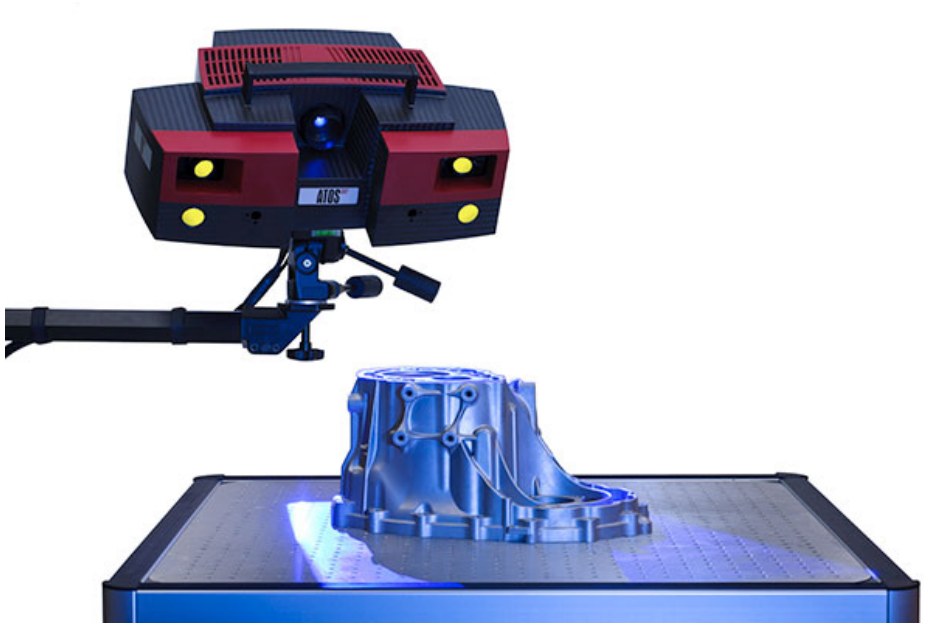
DRAPER

Recommendation for Blue Light 3D Mapping System

GOM Atos Triple Scan 16M



Field of View	(170mm x 130mm) - (810mm x 610mm)
Depth of Field	440mm - 800mm
Point Cloud Spacing	.03mm - .16mm
Point Cloud Accuracy	.0127 mm - .02 mm
Convert to STL	yes
Exposure Time	.5 s - 6 s
Mounting	Tripod/Industrial Robot
Weight	12.7 kg
Software	ATOS Professional
Operating Environment	5 - 40 °C
D&B Supplier Eval. Risk Rating	2
Price	$200k
Comments	Optional GOM Touch Probe for individual point measurements.



- High accuracy system with the option of using GOM Touch probe for individual point measurement
  - This can be used to measure inclusions that can't be mapped with structured light
- Consistent with existing qualified measurement systems for key aerospace manufacturers

From:	Fernandez, Barbara
Sent time:	01/17/2017 03:14:52 PM
To:	Molina-Rios, Carmen
Subject:	RE: GOM ATOS Sustainment

Ask him if he agrees with this or if he has other options.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

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From: Molina-Rios, Carmen
Sent: Tuesday, January 17, 2017 7:45 AM
To: Fernandez, Barbara
Subject: FW: GOM ATOS Sustainment

Fyi
Sent from my Windows Phone

From: Devins, Kenneth
Sent: 1/16/2017 1:19 PM
To: Molina-Rios, Carmen
Subject: GOM ATOS Sustainment

Carmen,

Please see Wayne's proposal for continuing support of the ITC owned equipment after Task 5. What are your thoughts?

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Monday, January 16, 2017 12:19 PM
To: Devins, Kenneth
Cc: Don Balducci
Subject: GOM ATOS

Ken – If DECD turns the GOM/ATOS machine over to CCAT after the OEA ITC money runs out, we will just add it to our "toolbox" of technologies here at the AMC. In return, CCAT will offer the GOM/ATOS as a structured light scanning/reverse engineering technology under the DECD MTIP Technology Access program. It will become a new task under the current CT Manufacturing Supply Chain Initiative (CMSCI-9) contract between DECD and CCAT.

I don't anticipate a cost associated with adding this as a new task to CMSCI-9.

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
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wsumple@ccat.us
www.ccat.us

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From: Molina-Rios, Carmen
Sent time: 11/23/2016 03:10:57 PM
To: Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>; Wayne Sumple <wsumple@ccat.us>
Cc: Don Balducci <dbalducci@ccat.us>; Nasir Mannan <nmannan@ccat.us>; John Quitter <jquitter@ccat.us>; John Glidden <jglidden@ccat.us>; Elinor Hargreaves <ehargreaves@ccat.us>; Fernandez, Barbara
Subject: RE: ITC Procedures and Guidelines
Attachments: Procedures-Guidelines ITC.docx

Hi Wayne and Ken,

Please see the revised Procedures and Guidelines. The main changes is the reference of Pratt & Whitney. Although they were a partner in addressing the issues and need for the specific technologies for P&W supply chain, this effort should support any supplier on the F35 for example Rolls Royce, etc. In addition, the other changes reflected were based on the earlier version of the procedures and guidelines that were worked on by Dan Lessard and CCAT staff.

Please review this next version and note that the yellow sections may or may not pertain based on the technology, but we need to be as explicit as possible. Ken and Wayne please weigh in on these sections and rework the process flow chart. .

Thank you. Happy Thanksgiving!

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, November 22, 2016 4:32 PM
To: Molina-Rios, Carmen; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: ITC Procedures and Guidelines

Carmen/Ken,

Here is the ITC Procedures and Guidelines document that CCAT will be following.

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
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wsumple@ccat.us
www.ccat.us

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From: Wayne Sumple <wsumple@ccat.us>
Sent time: 11/28/2016 04:04:23 PM
To: Devins, Kenneth <kdevins@belcan.com>
Cc: Molina-Rios, Carmen; Don Balducci <dbalducci@ccat.us>; John Quitter <jquitter@ccat.us>
Subject: RE: ITC Procedures and Guidelines
Attachments: Procedures-Guidelines ITC Rev G.docx

Ken – Attached is the latest version with corrections from you, Carmen and myself. Revisions in Track Changes.

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Monday, November 28, 2016 9:27 AM
To: Wayne Sumple
Cc: Molina-Rios, Carmen (Carmen.MolinaRios@ct.gov)
Subject: FW: ITC Procedures and Guidelines

Wayne,

I reviewed the attached Procedures & Guidelines document and have some suggestions for clarification.

1) Provide definitions for the acronyms OEM, SME and SLS,
2) Activate the link in the Technology section,
3) Is the supplier base applicable to the F35 aircraft or F135 propulsion system?

Ken

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 23, 2016 3:11 PM
To: 'Wayne Sumple'; Devins, Kenneth
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves; Fernandez, Barbara
Subject: RE: ITC Procedures and Guidelines

Hi Wayne and Ken,

Please see the revised Procedures and Guidelines. The main changes is the reference of Pratt & Whitney. Although they were a partner in addressing the issues and need for the specific technologies for P&W supply chain, this effort should support any supplier on the F35 for example Rolls Royce, etc. In addition, the other changes reflected were based on the earlier version of the procedures and guidelines that were worked on by Dan Lessard and CCAT staff.

Please review this next version and note that the yellow sections may or may not pertain based on the technology, but we need to be as explicit as possible. Ken and Wayne please weigh in on these sections and rework the process flow chart. .

Thank you. Happy Thanksgiving!

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, November 22, 2016 4:32 PM
To: Molina-Rios, Carmen; Ken Devins - Belcan (kdevins@belcan.com)
Cc: Don Balducci; Nasir Mannan; John Quitter; John Glidden; Elinor Hargreaves
Subject: ITC Procedures and Guidelines

Carmen/Ken,

Here is the ITC Procedures and Guidelines document that CCAT will be following.

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.

409 Silver Lane
East Hartford, CT 06108
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From:	Fernandez, Barbara
Sent time:	09/14/2017 11:44:47 AM
To:	Wayne Sumple <wsumple@ccat.us>; Molina-Rios, Carmen
Cc:	Karnes, Toni; Don Balducci <dbalducci@ccat.us>
Subject:	RE: ITC Update

No- it's a prompt for you to present the lesson learned from this program

---

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Thursday, September 14, 2017 11:16 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: Karnes, Toni <Toni.Karnes@ct.gov>; Don Balducci <dbalducci@ccat.us>
Subject: RE: ITC Update

OK. Got it. Will the "Lessons Learned" bullet have anything after it?

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
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East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
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From: Fernandez, Barbara [mailto:Barbara.Fernandez@ct.gov]
Sent: Thursday, September 14, 2017 11:07 AM
To: Wayne Sumple <wsumple@ccat.us>; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: Karnes, Toni <Toni.Karnes@ct.gov>
Subject: RE: ITC Update

These are your three slide- you will have 5 minutes. I have not put in the numbers for the first slide but I will do that using the info you just sent.

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Thursday, September 14, 2017 11:01 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Subject: FW: ITC Update

What should I plan to present at the September 21st MIF Board meeting?

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

From: Wayne Sumple
Sent: Thursday, September 14, 2017 10:47 AM
To: Fernandez, Barbara (Barbara.Fernandez@ct.gov) <Barbara.Fernandez@ct.gov>; Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>
Cc: Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>; Molina-Rios, Carmen (Carmen.MolinaRios@ct.gov) <Carmen.MolinaRios@ct.gov>; Don Balducci <dbalducci@ccat.us>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: ITC Update

Barbara/Ken,

Barbara – the information you asked for is presented below.

# of companies participated – GOM ATOS (15), NSI X5000 (4)
Types of Projects – Blue-light scanning, CT X-Ray
# of projects implemented – GOM ATOS (11), NSI X5000 (4)
Equipment Hours Used – Total 3035, GOM ATOS (2630) + NSI X5000(405)

Ken – the latest ITC update is provided below. Let me know if there is anything else you need.

ITC Update through 8/31/17

Since November of 2016 when the ITC officially started and the GOM ATOS was delivered to CCAT, 3035 hours have been spent by AMC personnel in the ITC. The first 930 were spent training on the GOM ATOS. The next 1700 were spent demonstrating the capabilities of the GOM ATOS to CT companies.

Since August of 2017 when the NSI X5000 was delivered 300 hours have been spent on preparing, delivery and training on the CT X-Ray scanner and 105 hours demonstrating the equipment and conducting projects.

The breakdown of hours provided below is an estimate mostly because informal demos aren't tracked the same way formal demos are tracked. Both the GOM ATOS and now the NSI CT X-Ray scanner are attracting a lot of attention to all visitors to the AMC.

How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?

930 hours
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?

1700 hours
Informal demonstrations to visitors touring AMC
Formal demonstrations to 15 companies
4 Projects being investigated
0 Active projects
7 Complete projects – Flanagan, GKN, NEAP, Phoenix, Satellite Tool, Vista
4 Not interested

How many hours have CCAT staff spent learning how to operate the NSI X5000 CT X-ray Scanner?

300 hours
Preparing space at the AMC for the ITC
Managing the delivery and installment of the NSI X5000
Formal training provided by NSI
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the NSI X5000 CT X-ray scanner to CT manufacturers?

105 hours
6 Informal demonstrations to visitors touring AMC
0 Projects being investigated
2 Active projects – Addaero, Advanced Manufacturing

2 Complete projects – Prospect Machine, UTAS

Wayne M. Sumple

Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
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From:	Fernandez, Barbara
Sent time:	09/14/2017 11:06:33 AM
To:	Wayne Sumple <wsumple@ccat.us>; Molina-Rios, Carmen
Cc:	Karnes, Toni
Subject:	RE: ITC Update
Attachments:	Wayne Sept 21 2017.pptx

These are your three slide- you will have 5 minutes. I have not put in the numbers for the first slide but I will do that using the info you just sent.

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Thursday, September 14, 2017 11:01 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Subject: FW: ITC Update

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Wayne M. Sumple

Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
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East Hartford, CT 06108
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wsumple@ccat.us
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From: Wayne Sumple
Sent: Thursday, September 14, 2017 10:47 AM
To: Fernandez, Barbara (Barbara.Fernandez@ct.gov) <Barbara.Fernandez@ct.gov>; Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>
Cc: Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>; Molina-Rios, Carmen (Carmen.MolinaRios@ct.gov) <Carmen.MolinaRios@ct.gov>; Don Balducci <dbalducci@ccat.us>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: ITC Update

Barbara/Ken,

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Formal training provided by NSI
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the NSI X5000 CT X-ray scanner to CT manufacturers?

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2 Active projects – Addaero, Advanced Manufacturing
2 Complete projects – Prospect Machine, UTAS

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
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CCAT

- Innovation Processes and Technology Projects
  - Equipment Purchased
    - Scan Box – “Blue Light” Scanning Technology
    - NSI X5000 X-Ray Technology
- Metrics
  - # of companies participated
  - Types of Projects
  - # of project implemented
  - Equipment Hours Used
- Lessons learned

Structured Light Scanner



X-Ray Scanner



From:	Fernandez, Barbara
Sent time:	03/23/2018 01:51:35 PM
To:	Wayne Sumple <wsumple@ccat.us>
Cc:	Gutierrez, Beatriz; Molina-Rios, Carmen
Subject:	RE: ITC Update

Thank you- do you have equipment utilization data? Are the companies in gray projects in process?

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Friday, March 23, 2018 1:20 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Don Balducci <dbalducci@ccat.us>; John Glidden <jglidden@ccat.us>; Lisa Wilson <lwilson@ccat.us>; Bruce Karasik <bkarasik@ccat.us>
Subject: ITC Update

Barbara – the information you asked for is provided below. The attached ITC Supplier Status is my tracking mechanism. The attached AMC Success Stories is a work in progress that provides non-defense related project detail with pictures.

# of companies participated – GOM ATOS (20), NSI X5000 (8)
Types of Projects – Blue-light scanning, CT X-Ray
# of projects implemented – GOM ATOS (19), NSI X5000 (9)
Equipment Hours Used – Total 4,253 - GOM ATOS (3,030) + NSI X5000(1,223)

ITC Update through 3/16/18
Since November of 2016 when the ITC officially started and the GOM ATOS was delivered to CCAT, 4,253 hours have been spent by AMC personnel in the ITC. The first 930 were spent training on the GOM ATOS. The next 2,100 were spent demonstrating the capabilities of the GOM ATOS to CT companies. Since August of 2017 when the NSI X5000 was delivered, 300 hours have been spent on preparing, delivery and training on the CT X-Ray scanner and 923 hours demonstrating the equipment and conducting projects. Breakdown of hours provided below is an estimate mostly because informal demos aren't tracked the same way formal demos are tracked. The GOM ATOS and the NSI CT X-Ray scanner are two of the more popular technologies demonstrated at the AMC.

How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?
930 hours
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?
2100 hours
Informal demonstrations to visitors touring AMC
Formal demonstrations to 20 companies
1 Project being investigated – Precision Metal Products
0 Active projects
10 Complete projects – AFRL, Dreamspace, Flanagan, GKN, NEAP, Phoenix, Satellite Tool, UTAS, Vista, Ward Leonard
9 Not interested

How many hours have CCAT staff spent learning how to operate the NSI X5000 CT X-ray Scanner?
300 hours
Preparing space at the AMC for the ITC
Managing the delivery and installment of the NSI X5000
Formal training provided by NSI
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the NSI X5000 CT X-ray scanner to CT manufacturers?
923 hours

Informal demonstrations to visitors touring AMC
Formal demonstrations to 8 companies
1 Project being investigated - Addaero
2 Active projects – Addaero, Keith Duly
5 Completed projects – Addaero, AGC Incorporated, P&W, Prospect Machine, Results Group

Wayne M. Sumple

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wsumple@ccat.us
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From: Lisa Wilson <lwilson@ccat.us>
Sent time: 07/20/2017 07:53:47 PM
To: Molina-Rios, Carmen
Cc: John Glidden <jglidden@ccat.us>; Susan Palisano <spalisano@ccat.us>; Don Balducci <dbalducci@ccat.us>; Wayne Sumple <wsumple@ccat.us>
Subject: Re: ITC Update

Awesome! Thanks so much!

Sent from my iPhone

On Jul 20, 2017, at 4:27 PM, Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov> wrote:

> Hi Lisa,
>
> Thank you, it works.
>
> Carmen
>
> ---
>
> **From:** Lisa Wilson [mailto:lwilson@ccat.us]
> **Sent:** Thursday, July 20, 2017 4:25 PM
> **To:** Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
> **Cc:** John Glidden <jglidden@ccat.us>
> **Subject:** Fwd: ITC Update
>
> Hi Carmen,
>
> Does the info below that I got from Wayne work? If you need more info let me know. I can get any additional from Wayne tomorrow. Ignore the golf email. -10179 ?-8694 ?
>
> Thanks,
> Lisa
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> > **From:** Lisa Wilson <lwilson@ccat.us>
> > **Date:** July 20, 2017 at 3:07:33 PM EDT
> > **To:** Wayne Sumple <wsumple@ccat.us>
> > **Cc:** Don Balducci <dbalducci@ccat.us>
> > **Subject: RE: ITC Update**
> >
> > Thank you Wayne! You guys are the best! Hope you hit a hole in one tonite!
> >
> > Lisa Wilson
> > Accounting Manager
> > Connecticut Center for Advanced Technology, Inc.
> > 222 Pitkin Street
> > East Hartford, CT 06108
> > Phone: 860-282-4988
> >
> > ---
> >
> > **From:** Wayne Sumple
> > **Sent:** Thursday, July 20, 2017 2:56 PM
> > **To:** Ken Devins - Belcan (kdevins@belcan.com)
> > **Cc:** Lisa Wilson; Don Balducci
> > **Subject:** ITC Update
> >
> > Hi Ken. I believe it's time for another ITC update.

Through June 2017

Since November of 2016 when the ITC was officially started, and the GOM ATOS was finally ordered, 2570 hours have been spent by AMC personnel in the ITC. The first 2480 hours were spent on the GOM ATOS. Since then a portion of the hours have been spent preparing for the NSI CT X-Ray scanner, due to be delivered later this year. The breakdown of hours provided below is an estimate mostly because informal demos aren't tracked the same way formal demos are tracked. The GOM ATOS attracts a lot of attention to all visitors to the AMC.

1. How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?

1600 hours
Activities included:
Informal demonstrations to visitors touring AMC
Formal demonstrations to 15 companies
4 projects being investigated
0 active projects
7 complete projects
4 not interested

2. How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?

930
Activities included:
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

3. How many hours have CCAT staff spent preparing for the NSI X5000 CT X-ray Scanner?
40
Activities included:
Preparing space at the AMC for the ITC
Managing the delivery and installment of the NSI X5000

Wayne M. Sumple
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From:	Molina-Rios, Carmen
Sent time:	07/20/2017 04:27:15 PM
To:	Lisa Wilson <lwilson@ccat.us>
Cc:	John Glidden <jglidden@ccat.us>
Subject:	RE: ITC Update

Hi Lisa,

Thank you, it works.

Carmen

From: Lisa Wilson [mailto:lwilson@ccat.us]
Sent: Thursday, July 20, 2017 4:25 PM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: John Glidden <jglidden@ccat.us>
Subject: Fwd: ITC Update

Hi Carmen,

Does the info below that I got from Wayne work? If you need more info let me know. I can get any additional from Wayne tomorrow. Ignore the golf email. ☺

Thanks,
Lisa

Sent from my iPhone

Begin forwarded message:

> **From:** Lisa Wilson <lwilson@ccat.us>
> **Date:** July 20, 2017 at 3:07:33 PM EDT
> **To:** Wayne Sumple <wsumple@ccat.us>
> **Cc:** Don Balducci <dbalducci@ccat.us>
> **Subject: RE: ITC Update**
>
> Thank you Wayne! You guys are the best! Hope you hit a hole in one tonite!
>
> Lisa Wilson
> Accounting Manager
> Connecticut Center for Advanced Technology, Inc.
> 222 Pitkin Street
> East Hartford, CT 06108
> Phone: 860-282-4988
>
> ---
>
> **From:** Wayne Sumple
> **Sent:** Thursday, July 20, 2017 2:56 PM
> **To:** Ken Devins - Belcan (kdevins@belcan.com)
> **Cc:** Lisa Wilson; Don Balducci
> **Subject:** ITC Update
>
> Hi Ken. I believe it's time for another ITC update.
>
> Through June 2017
>
> Since November of 2016 when the ITC was officially started, and the GOM ATOS was finally ordered, 2570 hours have been spent by AMC personnel in the ITC. The first 2480 hours were spent on the GOM ATOS. Since then a portion of the hours have been spent preparing for the NSI CT X-Ray scanner, due to be delivered later this year. The breakdown of hours provided below is an estimate mostly because informal demos aren't tracked the same way formal demos are tracked. The GOM ATOS attracts a lot of attention to all visitors to the AMC.

1. How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?

1600 hours
Activities included:
Informal demonstrations to visitors touring AMC
Formal demonstrations to 15 companies
4 projects being investigated
0 active projects
7 complete projects
4 not interested

2. How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?

930
Activities included:
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

3. How many hours have CCAT staff spent preparing for the NSI X5000 CT X-ray Scanner?

40
Activities included:
Preparing space at the AMC for the ITC
Managing the delivery and installment of the NSI X5000

Wayne M. Sumple
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From:	Wayne Sumple <wsumple@ccat.us>
Sent time:	09/14/2017 11:15:30 AM
To:	Fernandez, Barbara; Molina-Rios, Carmen
Cc:	Karnes, Toni; Don Balducci <dbalducci@ccat.us>
Subject:	RE: ITC Update

OK. Got it. Will the "Lessons Learned" bullet have anything after it?

Wayne M. Sumple

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www.ccat.us

From: Fernandez, Barbara [mailto:Barbara.Fernandez@ct.gov]
Sent: Thursday, September 14, 2017 11:07 AM
To: Wayne Sumple <wsumple@ccat.us>; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: Karnes, Toni <Toni.Karnes@ct.gov>
Subject: RE: ITC Update

These are your three slide- you will have 5 minutes. I have not put in the numbers for the first slide but I will do that using the info you just sent.

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Thursday, September 14, 2017 11:01 AM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Subject: FW: ITC Update

What should I plan to present at the September 21st MIF Board meeting?

Wayne M. Sumple

Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

From: Wayne Sumple
Sent: Thursday, September 14, 2017 10:47 AM
To: Fernandez, Barbara (Barbara.Fernandez@ct.gov) <Barbara.Fernandez@ct.gov>; Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>
Cc: Ken Devins - Belcan (kdevins@belcan.com) <kdevins@belcan.com>; Molina-Rios, Carmen (Carmen.MolinaRios@ct.gov) <Carmen.MolinaRios@ct.gov>; Don Balducci <dbalducci@ccat.us>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: ITC Update

Barbara/Ken,

Barbara – the information you asked for is presented below.

# of companies participated – GOM ATOS (15), NSI X5000 (4)
Types of Projects – Blue-light scanning, CT X-Ray
# of projects implemented – GOM ATOS (11), NSI X5000 (4)
Equipment Hours Used – Total 3035, GOM ATOS (2630) + NSI X5000(405)

Ken – the latest ITC update is provided below. Let me know if there is anything else you need.

ITC Update through 8/31/17

Since November of 2016 when the ITC officially started and the GOM ATOS was delivered to CCAT, 3035 hours have been spent by AMC personnel in the ITC. The first 930 were spent training on the GOM ATOS. The next 1700 were spent demonstrating the capabilities of the GOM ATOS to CT companies.

Since August of 2017 when the NSI X5000 was delivered 300 hours have been spent on preparing, delivery and training on the CT X-Ray scanner and 105 hours demonstrating the equipment and conducting projects.

The breakdown of hours provided below is an estimate mostly because informal demos aren't tracked the same way formal demos are tracked. Both the GOM ATOS and now the NSI CT X-Ray scanner are attracting a lot of attention to all visitors to the AMC.

How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?

930 hours
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?

1700 hours
Informal demonstrations to visitors touring AMC
Formal demonstrations to 15 companies
4 Projects being investigated
0 Active projects
7 Complete projects – Flanagan, GKN, NEAP, Phoenix, Satellite Tool, Vista
4 Not interested

How many hours have CCAT staff spent learning how to operate the NSI X5000 CT X-ray Scanner?

300 hours
Preparing space at the AMC for the ITC
Managing the delivery and installment of the NSI X5000
Formal training provided by NSI
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the NSI X5000 CT X-ray scanner to CT manufacturers?

105 hours
6 Informal demonstrations to visitors touring AMC
0 Projects being investigated
2 Active projects – Addaero, Advanced Manufacturing
2 Complete projects – Prospect Machine, UTAS

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.

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From: Wayne Sumple <wsumple@ccat.us>
Sent time: 03/26/2018 10:33:08 AM
To: Fernandez, Barbara
Cc: Gutierrez, Beatriz; Molina-Rios, Carmen; Don Balducci <dbalducci@ccat.us>; John Glidden <jglidden@ccat.us>
Subject: RE: ITC Update

Barbara,

1. For the most part, the numbers quoted are the utilization. When we're not actually scanning a part, we are analyzing, manipulating or reconstructing the scanned data using the two computer workstations that came with the GOM ATOS and the NSI X5000.
2. Colors on the excel spreadsheet correspond to the status column. Gray is "cancelled".

Wayne M. Sumple
Associate Director, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

From: Fernandez, Barbara [mailto:Barbara.Fernandez@ct.gov]
Sent: Friday, March 23, 2018 1:52 PM
To: Wayne Sumple <wsumple@ccat.us>
Cc: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Subject: RE: ITC Update

Thank you- do you have equipment utilization data? Are the companies in gray projects in process?

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Friday, March 23, 2018 1:20 PM
To: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>; Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Cc: Don Balducci <dbalducci@ccat.us>; John Glidden <jglidden@ccat.us>; Lisa Wilson <lwilson@ccat.us>; Bruce Karasik <bkarasik@ccat.us>
Subject: ITC Update

Barbara – the information you asked for is provided below. The attached ITC Supplier Status is my tracking mechanism. The attached AMC Success Stories is a work in progress that provides non-defense related project detail with pictures.

# of companies participated – GOM ATOS (20), NSI X5000 (8)
Types of Projects – Blue-light scanning, CT X-Ray
# of projects implemented – GOM ATOS (19), NSI X5000 (9)
Equipment Hours Used – Total 4,253 - GOM ATOS (3,030) + NSI X5000(1,223)

ITC Update through 3/16/18
Since November of 2016 when the ITC officially started and the GOM ATOS was delivered to CCAT, 4,253 hours have been spent by AMC personnel in the ITC. The first 930 were spent training on the GOM ATOS. The next 2,100 were spent demonstrating the capabilities of the GOM ATOS to CT companies. Since August of 2017 when the NSI X5000 was delivered, 300 hours have been spent on preparing, delivery and training on the CT X-Ray scanner and 923 hours demonstrating the equipment and conducting projects. Breakdown of hours provided below is an estimate mostly because informal demos aren't tracked the same way formal demos are tracked. The GOM ATOS and the NSI CT X-Ray scanner are two of the more popular technologies demonstrated at the AMC.

How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?
930 hours

Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?
2100 hours
Informal demonstrations to visitors touring AMC
Formal demonstrations to 20 companies
1 Project being investigated – Precision Metal Products
0 Active projects
10 Complete projects – AFRL, Dreamspace, Flanagan, GKN, NEAP, Phoenix, Satellite Tool, UTAS, Vista, Ward Leonard
9 Not interested

How many hours have CCAT staff spent learning how to operate the NSI X5000 CT X-ray Scanner?
300 hours
Preparing space at the AMC for the ITC
Managing the delivery and installment of the NSI X5000
Formal training provided by NSI
Informal training and practice on operation of hardware and software

How many hours have CCAT staff spent demonstrating the NSI X5000 CT X-ray scanner to CT manufacturers?
923 hours
Informal demonstrations to visitors touring AMC
Formal demonstrations to 8 companies
1 Project being investigated - Addaero
2 Active projects – Addaero, Keith Duly
5 Completed projects – Addaero, AGC Incorporated, P&W, Prospect Machine, Results Group

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From: Molina-Rios, Carmen
Sent time: 11/16/2016 02:14:56 PM
To: Wayne Sumple <wsumple@ccat.us>
Cc: Jean M. Forsyth (jforsyth@belcan.com) <jforsyth@belcan.com>; Don Balducci <dbalducci@ccat.us>
Subject: RE: ITC

Hi Wayne,

Thank you for updating me on the status of the equipment, installation and training. Yes, please work with Belcan on resolving issues and planning for company projects. I would like to come and visit the facility. Please let me know when would be a good time to see the engineers training and/or working on the machines.

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Wednesday, November 16, 2016 1:29 PM
To: Molina-Rios, Carmen
Cc: Don Balducci; Jean M. Forsyth (jforsyth@belcan.com)
Subject: ITC

Hi Carmen,

GOM ATOS blue light scanner is finally up and running in the ITC. First day of training was yesterday. Thought you'd like an update. My initial observation is that the scanner is more complicated to operate than expected but has more capabilities than expected also. Our CCAT engineers are excited about the possibilities for this technology. That being said, there are a couple of outstanding issues that need to be resolved.

Now that Jean and Ken at Beltran have been assigned as Project Managers of the ITC effort I will work with them to resolve.

- Robot Controller - 3D Systems installers damaged the robot last Monday during installation. Wired incorrectly to power source. Took several days to fix.
- Side Panel - One side panel damaged by 3D Systems during installation (minor) – still needs to be repaired.
- Reference Frames – The three photogrammetry reference frames and their mounting hardware that came with the Scan Box, do not fit in the Scan Box – these will need to be replaced.
- Training – follow on training by 3D Systems still needs to be scheduled

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From:	Molina-Rios, Carmen
Sent time:	11/17/2016 09:56:05 AM
To:	Wayne Sumple <wsumple@ccat.us>
Subject:	RE: ITC

Hi Wayne,

How much is owed to 3D and have they given you a timing of when they expect things to be resolved?

Thanks,

Carmen

Sent from my Windows Phone

From: Wayne Sumple
Sent: 11/17/2016 9:11 AM
To: Molina-Rios, Carmen
Cc: Don Balducci; Jean M. Forsyth (jforsyth@belcan.com); 'kdevins@belcan.com'; kdevins@belcan.com
Subject: RE: ITC

Carmen –

- I will work with Ken and Jean at Belcan
- I will let you know when the next day for training will be scheduled
- I would hold off paying 3D until all outstanding issues are resolved

Wayne

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 16, 2016 2:15 PM
To: Wayne Sumple
Cc: Don Balducci; Jean M. Forsyth (jforsyth@belcan.com)
Subject: RE: ITC

Hi Wayne,

Thank you for updating me on the status of the equipment, installation and training. Yes, please work with Belcan on resolving issues and planning for company projects. I would like to come and visit the facility. Please let me know when would be a good time to see the engineers training and/or working on the machines.

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Wednesday, November 16, 2016 1:29 PM
To: Molina-Rios, Carmen
Cc: Don Balducci; Jean M. Forsyth (jforsyth@belcan.com)
Subject: ITC

Hi Carmen,

GOM ATOS blue light scanner is finally up and running in the ITC. First day of training was yesterday. Thought you'd like an update. My initial observation is that the scanner is more complicated to operate than expected but has more capabilities than expected also. Our CCAT engineers are excited about the possibilities for this technology. That being said, there are a couple of outstanding issues that need to be resolved.

Now that Jean and Ken at Beltran have been assigned as Project Managers of the ITC effort I will work with them to resolve.

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- Side Panel - One side panel damaged by 3D Systems during installation (minor) – still needs to be repaired.

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- Training – follow on training by 3D Systems still needs to be scheduled

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

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From:	Wayne Sumple <wsumple@ccat.us>
Sent time:	11/17/2016 11:51:31 AM
To:	Molina-Rios, Carmen
Cc:	Don Balducci <dbalducci@ccat.us>
Subject:	RE: ITC

1. Not sure how much is owed, but the Capture 3D Quote to Draper Labs, dated 4/21/16, says the terms are "30% down with the balance due on receipt".
2. Capture 3D is questioning responsibility for damage of side panel.
3. Capture 3D says the Reference Frames should be fixed by 11/21.
4. Capture 3D and CCAT having difficulty scheduling training sessions.

-----Original Message-----
From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Thursday, November 17, 2016 9:56 AM
To: Wayne Sumple
Subject: RE: ITC

Hi Wayne,

How much is owed to 3D and have they given you a timing of when they expect things to be resolved?

Thanks,

Carmen

Sent from my Windows Phone

_____
From: Wayne Sumple<mailto:wsumple@ccat.us>
Sent: 11/17/2016 9:11 AM
To: Molina-Rios, Carmen<mailto:Carmen.MolinaRios@ct.gov>
Cc: Don Balducci<mailto:dbalducci@ccat.us>; Jean M. Forsyth (jforsyth@belcan.com)<mailto:jforsyth@belcan.com>; 'kdevins@belcan.com'<mailto:kdevins@belcan.com>; kdevins@belcan.com<mailto:kdevins@belcan.com>
Subject: RE: ITC

Carmen –

· I will work with Ken and Jean at Belcan

· I will let you know when the next day for training will be scheduled

· I would hold off paying 3D until all outstanding issues are resolved

Wayne

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 16, 2016 2:15 PM
To: Wayne Sumple
Cc: Don Balducci; Jean M. Forsyth (jforsyth@belcan.com)
Subject: RE: ITC

Hi Wayne,

Thank you for updating me on the status of the equipment, installation and training. Yes, please work with Belcan on resolving issues and planning for company projects. I would like to come and visit the facility. Please let me know when would be a good

time to see the engineers training and/or working on the machines.

Carmen

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Wednesday, November 16, 2016 1:29 PM
To: Molina-Rios, Carmen
Cc: Don Balducci; Jean M. Forsyth (jforsyth@belcan.com<mailto:jforsyth@belcan.com>)
Subject: ITC

Hi Carmen,

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From: Wayne Sumple <wsumple@ccat.us>
Sent time: 11/17/2016 09:11:42 AM
To: Molina-Rios, Carmen
Cc: Jean M. Forsyth (jforsyth@belcan.com) <jforsyth@belcan.com>; kdevins@belcan.com; kdevins@belcan.com; Don Balducci <dbalducci@ccat.us>
Subject: RE: ITC

Carmen –

- I will work with Ken and Jean at Belcan
- I will let you know when the next day for training will be scheduled
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Sent: Wednesday, November 16, 2016 2:15 PM
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Cc: Don Balducci; Jean M. Forsyth (jforsyth@belcan.com)
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Note: Non-responsive material redacted not within the perimeters of the FOI request.

From: John Glidden <jglidden@ccat.us>
Sent time: 12/12/2017 02:59:46 PM
To: Molina-Rios, Carmen
Subject: RE: MIF Advisory Board Meeting State Investment Chart

Hi Carmen… it was DECD. This was bonding which had been approved many years ago (2007 ish). Deb Russo processed the paperwork. Best, John

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, December 12, 2017 2:01 PM
To: John Glidden
Cc: Fernandez, Barbara; Karnes, Toni
Subject: MIF Advisory Board Meeting State Investment Chart

Hi John,

Please provide the name of the fiduciary agent (state agency) that provided the bond funds for the Innovation in Hybrid Manufacturing Systems in CT?

Thanks,

Carmen

Program Name	CT Investment in Project	Source of Funds	CCAT Funding Match	Technology/ Use
[redacted]				
RADE ITC Equipment: GOM ATOS	$500,000	OEA/Fed		Structured blue light scanner
RADE ITC Equipment: CT Scan NSI X5000	$450,000	MIF		Computed topography (CT) x-ray scanner
[redacted]				

Carmen Molina-Rios
Office of Business Development
Department of Economic and Community Development
450 Columbus Blvd., Hartford, CT 06103-1843
P: 860.500.2314 | E: Carmen.Molinarios@ct.gov

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From:	Wayne Sumple <wsumple@ccat.us>
Sent time:	09/14/2017 08:26:12 AM
To:	Molina-Rios, Carmen; Fernandez, Barbara
Cc:	Don Balducci <dbalducci@ccat.us>
Subject:	RE: MIF Board Sept. 21st Meeting - ITC CCAT Presentation
Attachments:	ITC Presentation to MIF Board.pptx

Carmen/Barbara – OK, now I'm confused. Barbara has asked for only one slide. Are we talking about the same meeting/presentation? Attached is a short presentation that I can go through in 10 minutes. If I need to reduce to one slide I can. Let me know….

Wayne M. Sumple
Manager, Advanced Manufacturing Center
Connecticut Center for Advanced Technology, Inc.
409 Silver Lane
East Hartford, CT 06108
860-282-4222
wsumple@ccat.us
www.ccat.us

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Monday, September 11, 2017 2:35 PM
To: Wayne Sumple <wsumple@ccat.us>
Cc: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; Karnes, Toni <Toni.Karnes@ct.gov>
Subject: MIF Board Sept. 21st Meeting - ITC CCAT Presentation

Hi Wayne,

As follow up to Barbara's request for you to present at the MIF Meeting on September 21st, it would be helpful for you to provide the methodology in the way CCAT performed the company projects; program metrics; and lessons learned. Below is the place holder slide. Please provide an updated slide with the metrics filled in and the scan box technology. Also, you have 10 minutes on the agenda. It would be good if you have pictures of the equipment and provide a company perspective on the use of each piece of equipment.



In addition when preparing your slides, please provide the board with a perspective on the lessons learned and metrics that would help them understand that the $450,000 match (MIF investment) had a positive return for CT and the New England Region. I'm available this afternoon if you'd like to talk through your presentation.

Thanks,

Carmen

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Innovation Technology Center (ITC)

MIF Meeting
September 21, 2017

Connecticut Center for Advanced Technology, Inc.

Connecticut

Structured Light Scanner



CT X-Ray Scanner



GOM ATOS

- 930 hours – Prep, delivery & training
- 1700 hours – Demonstrations & projects
  - Informal demonstrations to visitors touring AMC
  - Formal demonstrations to 15 companies
  - 7 projects

GOM ATOS

- Project Activity
  - 4 projects still being investigated
  - 7 complete projects – Flanagan, GKN Newington, NEAP, Phoenix, Satellite Tool, Vista
  - 4 not interested

GOM ATOS

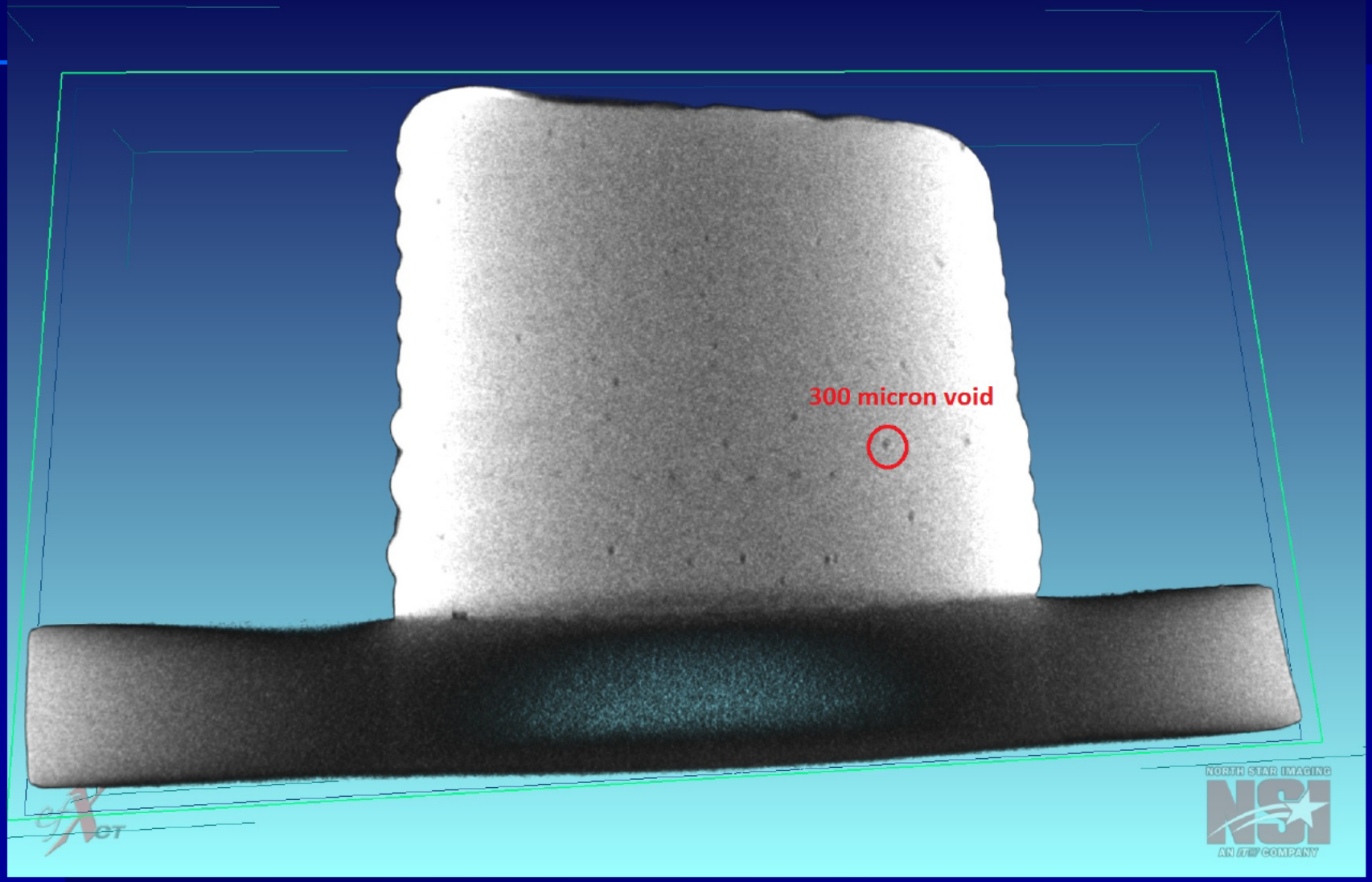
- Typical project – comparing blue light results to CMM (coordinate measuring machine) results for speed and accuracy.
- Lessons learned – good for complicated geometries, not good for highly reflective parts.
- 2 of 7 companies still actively looking at structured light scanning
- 1 of 7 companies rejected this technology
- 4 of 7 appear indifferent

NORTH STAR IMAGING

AN ITW COMPANY

NORTH STAR IMAGING

www.4nsi.com 800-635-8392 xrayinspectionservice.com



NSI X5000

- 300 hours – Prep, delivery & training
- 105 hours – Demonstrations & projects
  - 6 informal demonstrations to visitors touring AMC
  - 4 projects

NSI X5000

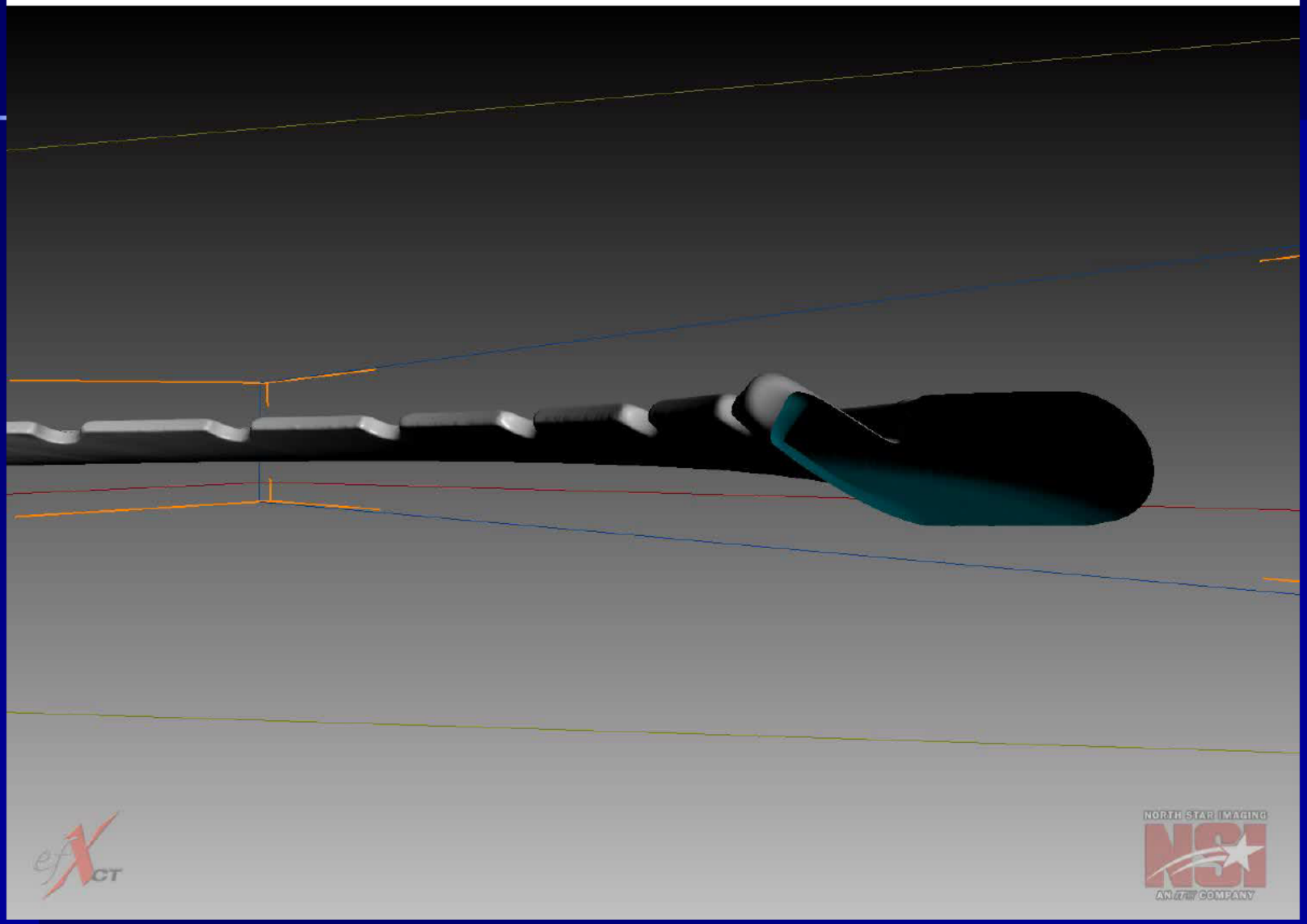
- Project activity
  - 2 project scans completed (Prospect Machine, UTAS)
  - 2 project scans in progress (Addaero, Advanced Manufacturing)

NORTH STAR IMAGING

AN ITW COMPANY

NORTH STAR IMAGING

www.4nsi.com 800-635-8392 xrayinspectionservice.com



NSI X5000

- Typical project
  - Looking for voids in plastic or metal parts
  - Quality inspection of internal features of parts
- Lessons Learned
  - More complicated than structured light to operate
  - Vital to additive manufacturing industry as quality control

From:	Gutierrez, Beatriz
Sent time:	03/15/2018 05:36:01 PM
To:	Wayne Sumple <wsumple@ccat.us>
Cc:	Fernandez, Barbara; Molina-Rios, Carmen
Subject:	RE: NSI CT scanner

Wayne,

We'll discuss internally and will get back to you next week.

Beatriz

From: Wayne Sumple [mailto:wsumple@ccat.us]
Sent: Tuesday, March 13, 2018 12:27 PM
To: Gutierrez, Beatriz <Beatriz.Gutierrez@ct.gov>
Subject: NSI CT scanner

Beatriz – when will I know for sure what happens to the NSI X-ray machine and GOM ATOS Blue-light scanner after ITC money goes away?

I'm spending money to keep them running so I can continue with projects for CT companies. Projects with CT SME's - Addaero, Dreamspace, Clayton Off-Road, AGC Acquisitions, Keith Duly International and Results Group, along with larger CT manufacturers - UTAS, UTRC and P&W have used all the memory that came with the machines. I bought external hard drives ($1000) and 500GB ($3000) of additional space with our Secure Document Control System, Trubiquity to handle all the work. And I've got more projects in the planning stage. So, before I spend more money to fix the problem, and there are several good solutions, I need to know whether the equipment is going to be with CCAT or not. Can you provide any direction?

Wayne M. Sumple
Associate Director, Advanced Manufacturing Center
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From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 06/02/2017 11:01:26 AM
To: Molina-Rios, Carmen
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>; Wayne Sumple <wsumple@ccat.us>
Subject: RE: NSI X5000 Award Received

Carmen,

Please see my response to the questions from your prior e-mail.

Wayne Sumple and I participated in a conference call with NSI on 6/1/17 to confirm that the purchase order for the NSA X5000 X-Ray Scanner has been approved and NSI has begun its process for delivery. Andy Goenner has been assigned by NSI as the Project Manager and will be our primary point-of-contact going forward. NSI advised that DECD/CCAT should expect a 2 week delay on the schedule that originally had the order being placed on 5/15. It was placed on 5/30. However, NSI will work to expedite the order.

- Equipment Delivery Date: 8/21/17
- Installation Date: 9/8/17
- Acceptance Test Date: 9/18/17
- Training schedule: .
  - Approximately 1 week after delivery/preliminary installation is complete, NSI will send a trainer to CCAT. The optimum number of trainees is 4 for the 4 day on-site session at CCAT.
  - Approximately 1 month after the on-site training, NSI suggests training at the NSI Minnesota facility. 1 seat is included in the contract.
- CCAT's services:
  1. System Specifications and System Installation and Facility Requirements have been supplied to CCAT by NSI.
  2. NSI will be sending a revised delivery/installation/training schedule.
  3. NSI will deliver the system to CCAT and place it on dock.
  4. CCAT will be responsible for riggers to move system from dock to installation location and rough leveling of the equipment on the concrete flooring.
  5. Approximately 1 week after delivery/preliminary installation, NSI will send a technician to complete the leveling, alignment and final installation. (4 days)
  6. CCAT will be responsible for electrician landing power to the equipment..
  7. CCAT will define the equipment Acceptance Criteria based on a standard set of criteria supplied by NSI.
  8. In coordination with DECD/Belcan CCAT will work with suppliers to complete projects demonstrating the effectiveness of the x-ray technology as applied to their products.
- Marketing/outreach plan
  -Belcan and CCAT will solicit Connecticut based F35 and DOD suppliers participation using the same process that has been successful with the GOM ATOS Blue Light Scanner. We will begin with current participating ITC suppliers thru phone and e-mail contacts and expand the supplier list as appropriate.
- How many companies are anticipated to participate?
  - Two suppliers have already expressed interest and will be the first to participate. Our goal is to complete their initial projects and add two additional suppliers by the Task 5 end date of 9/30/17.
- How many projects is the target?
  - Plan for two projects to be complete by 9/30/17. Additional project activity will depend on contracts and funding beyond Task 5. Beyond the 9/30/17 date it is anticipated that the X5000 scanner will be available to the 60 plus suppliers originally identified for Task 5 participation and funded through current and future CMSCI sustainability programs.

	Timeline, Milestones and Schedule	
Date	**Activity**	**Responsible Party**
12/15/2016	**DECD receive quote for NSI X-Ray Imaging Systems and Equipment**	**NSI**
12/31/2016	**DECD negotiations completed**	**DECD**

5/30/2017	**Purchase Order submitted by DECD and approved**	**DECD**
7/24/2017	**Complete ITC room preparations to install equipment**	**CCAT**
8/21/2017	**NSI equipment delivered to DECD at the ITC in East Hartford**	**NSI**
8/25/2017	**Complete rigging equipment from loading dock to final location, hook up to power**	**CCAT**
9/8/2017	**Complete set-up, installation, testing**	**NSI**
9/18/2017	**NSI equipment machine commissioned and Acceptance Test completed**	**NSI**

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Tuesday, May 30, 2017 12:45 PM
To: Devins, Kenneth
Subject: RE: NSI X5000 Award Received

Ken,

The purchase order has been approved and NSI can begin its process for delivery. Please provide me with a plan by this Friday to include but not limited to the following:

- Equipment Delivery Date:
- Installation Date:
- Training schedule:
- CCAT's services:
- Marketing/outreach plan
- How many companies is anticipated to serve?
- How many projects is the target?

Also, let's plan on talking next Monday or Tuesday. Let me know which day is better in the morning.

Thanks,

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Tuesday, May 30, 2017 11:48 AM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Subject: FW: NSI X5000 Award Received

Carmen,
Please confirm that the purchase order for the NSI X5000 scanner has been approved and delivered to NSI.
Thanks,
Ken

From: Dimon, Jason [mailto:jdimon@4nsi.com]
Sent: Tuesday, May 30, 2017 11:36 AM
To: Wayne Sumple; Devins, Kenneth
Cc: Don Balducci; Jeff Crandall; Tom Maloney; Nasir Mannan; Goenner, Andrew

Subject: NSI X5000 Award Received

Hello Wayne, Don, Jeff, Tom, Nasir and Ken,

I hope you all had a great memorial weekend.

Today we received the award for the X5000 DR.CT System. Thank you so much!! We look forward to working with your team.

Andy Goenner will be the Project Manger working with your team as of today until the project is installed and accepted. Who should be the primary point of contact for your team? Can you advise their contact information so I can pass along to Andy. He will reach out shortly.

Thank you again! I am excited to finally get to visit your facility in the next couple weeks.

Thank you,
Jason

Jason Dimon
North East Technical Sales Manager | North Star Imaging
19875 S. Diamond Lake Rd.
Rogers, MN 55374
Phone#: 763-200-3432
f. 763-463-5651| jdimon@4nsi.com | www.4nsi.com



For application examples, please see:

http://4nsi.com/application-studies/explosives
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http://4nsi.com/application-studies/pacemaker
http://4nsi.com/application-studies/fuel-injectors
http://4nsi.com/application-studies/3d-printed-parts

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From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 03/02/2017 10:59:38 AM
To: rarthur@crec.net
Cc: mromitti@crec.net; cbraunlich@crec.net; Molina-Rios, Carmen
Subject: RE: OEA CT-RADE

Randall,

As requested here are the hours for training and operation of the GOM ATOS scanner at CCAT/ITC totaling 1180..

How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?

550 hours
Activities included:
Informal demonstrations to visitors touring AMC
Formal demonstrations to 13 companies
4 active projects
1 complete project

How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?

630
Activities included:
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: rarthur@crec.net [mailto:rarthur@crec.net]
Sent: Monday, February 27, 2017 2:52 PM
To: Devins, Kenneth
Cc: mromitti@crec.net; cbraunlich@crec.net
Subject: OEA CT-RADE

Hi Ken,

Great seeing you last week. I am beginning to write up CCAT's section of the final report. There are just a few details that I am missing.

They include:

1. How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?
2. How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?

Any information you can provide, is obviously greatly appreciated.

Best,

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	03/03/2017 08:05:54 AM
To:	rarthur@crec.net
Cc:	Molina-Rios, Carmen
Subject:	RE: OEA CT-RADE

Randall,

Please contact Carmen Molina-Rios at DECD to answer your question on the timeline of events for CCAT getting approval to use OEA funds to purchase the bluelight scanner.

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: rarthur@crec.net [mailto:rarthur@crec.net]
Sent: Thursday, March 02, 2017 3:43 PM
To: Devins, Kenneth
Subject: RE: OEA CT-RADE

Ken,

Do you happen to know the timeline of events for CCAT getting approval to use OEA funds to purchase the bluelight scanner?

And do you also know the cost of the scanner?

Best,

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Thursday, March 2, 2017 11:00 AM
To: rarthur@crec.net
Cc: mromitti@crec.net; cbraunlich@crec.net; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Subject: RE: OEA CT-RADE

Randall,

As requested here are the hours for training and operation of the GOM ATOS scanner at CCAT/ITC totaling 1180..

How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?

550 hours
Activities included:
Informal demonstrations to visitors touring AMC
Formal demonstrations to 13 companies
4 active projects
1. *complete project*

How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?

630
Activities included:
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

Ken

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Best,

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	03/08/2017 08:32:14 AM
To:	rarthur@crec.net
Cc:	Molina-Rios, Carmen
Subject:	RE: OEA CT-RADE
Attachments:	DECD RADE 5 Status 030717.xlsx

Randall,

Attached is the summary of activities that you requested.

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: rarthur@crec.net [mailto:rarthur@crec.net]
Sent: Monday, March 06, 2017 11:23 AM
To: Devins, Kenneth
Subject: RE: OEA CT-RADE

Hi Ken,

Below is Section 5 of the OEA final report on the OEA Connecticut RADE project.

Task 5 – Manufacturing Innovation

Increase Connecticut companies' cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the Connecticut supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

Subtasks:

5.1 Hire technical coordinator
5.2 Acquire and/or lease machinery, equipment
5.3 Installation of machinery and equipment
5.4 Perform outreach to supply chain
5.5 Identify training needs
5.6 Deliver training (if/when appropriate)
5.7 Process improvement project implementation
5.8 Analyze/report on manufacturing innovation processes and technologies

Deliverable(s):

- CT Innovation Technology Center is established, operational, and staffed
- Suppliers are aware of the ITC and its capabilities
- Participating companies' staff trained on new processes and technologies
- Reporting on the effectiveness and best practices of manufacturing innovation methodologies and technologies at participating companies
- Manufacturing Technology Innovation Needs Statement

Metrics:

- A minimum of 20 supply chain companies participate
- A minimum of 10 projects implemented
- Available hours used on the equipment by suppliers
- Number of projects
- Equipment hours used
- Equipment ordered by suppliers

Best,

Number of processes implemented by suppliers in their facility Best,

---

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Sent: Thursday, March 2, 2017 3:43 PM
To: 'Devins, Kenneth' <kdevins@belcan.com>
Subject: RE: OEA CT-RADE

Ken,

Do you happen to know the timeline of events for CCAT getting approval to use OEA funds to purchase the bluelight scanner?

And do you also know the cost of the scanner?

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Sent: Thursday, March 2, 2017 11:00 AM
To: rarthur@crec.net
Cc: mromitti@crec.net; cbraunlich@crec.net; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
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Informal training and practice on operation of hardware and software

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Task 5 – Manufacturing Innovation

Increase CT Companies cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

Sub Tasks:		
5.1 Hire technical coordinator	Complete 11/15/16	Belcan
5.2 Acquire and/or lease machinery, equipment	Complete 11/15/16	CCAT
5.3 Installation of machinery and equipment	Complete 11/15/16	CCAT
5.4 Perform outreach to supply chain	Initial survey 1/31/16, follow-up ongoing	DECD / Belcan
5.5 Identify training needs	GOM ATOS Complete 11/15/16	CCAT
5.6 Deliver training (if/when appropriate)	Complete 12/7/16	CCAT
5.7 Process Improvement project implementation	TBD	Draper
5.8 Analyze/report on manufacturing innovation	TBD	Belcan /CCAT /Draper
Deliverable:		
• CT Innovation Technology Center is established, operational, and staffed	Complete 12/15/16	CCAT
• Suppliers are aware of ITC and its capabilities	Initial survey 1/31/16, follow-up ongoing	DECD / Belcan
• Participating companies staff trained on new processes and technologies	1/11/2017	Draper / CCAT
• Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies	Ongoing	Belcan /CCAT /Draper
• Manufacturing Technology Innovation Needs Statement	TBD	Belcan /CCAT /Draper
Metrics:		
• A minimum of 20 supply chain companies participate	18	Draper - 7, CCAT - 5
• A minimum of 10 projects implemented	6	Draper
• Available hours used on the equipment by suppliers	TBD	Draper / CCAT
• Number of projects	24	Belcan /CCAT /Draper
• Equipment hours used	1150	Draper / CCAT
• Equipment ordered by suppliers	Yes	Draper / CCAT
• Number of processes implementing by supplier in their facility	6	Draper / CCAT

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	08/28/2017 10:55:11 AM
To:	mromitti@crec.net
Cc:	Molina-Rios, Carmen
Subject:	RE: OEA CT-RADE
Attachments:	DECD RADE 5 Status 7-31-17.xlsx

Marty,

I am available this Wednesday and Friday after 10AM or later today if you like.
I am attaching the latest summary of the contract deliverables to assist in our conference call.
We did add an NSI X5000 X-Ray scanner to the ITC at CCAT and are working with selected suppliers to arrange projects to demonstrate this technology along with the GOM ATOS Blue Light scanner.
Training for the X5000 is scheduled to start tomorrow at CCAT.
I look forward to our discussion.
Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: mromitti@crec.net [mailto:mromitti@crec.net]
Sent: Monday, August 28, 2017 10:42 AM
To: Devins, Kenneth
Cc: mromitti@crec.net
Subject: Re: OEA CT-RADE

Ken

I hope everything is going well in Connecticut. As the OEA CT-RADE extension for Task 5 deliverables ends September 30, I was hoping we (CREC) could set up a call to talk with you for an hour or so on the progress made since early March. This would include any updates you can provide on the GOM ATOS scanner use, ITC success in outreach to the supply chain, etc. (as listed below) . I also understand the additional piece of equipment has arrived at the ITC.

We are looking to update our Evaluation Report that we are conducting on behalf of the CT Department of Economic and Community Development (DECD).

My calendar is flexible this week as well as the week following the Labor Day holiday. Please let me know some dates and times that work for you.

Below is a list of the metrics associated with Task 5, for an idea of what we are looking for:

Task 5 – Manufacturing Innovation
Increase Connecticut companies' cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the Connecticut supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

Subtasks:
5.1 Hire technical coordinator
5.2 Acquire and/or lease machinery, equipment
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5.4 Perform outreach to supply chain
5.5 Identify training needs
5.6 Deliver training (if/when appropriate)
5.7 Process improvement project implementation
5.8 Analyze/report on manufacturing innovation processes and technologies

Deliverable(s):
- CT Innovation Technology Center is established, operational, and staffed

- Suppliers are aware of the ITC and its capabilities
- Participating companies' staff trained on new processes and technologies
- Reporting on the effectiveness and best practices of manufacturing innovation methodologies and technologies at participating companies
- Manufacturing Technology Innovation Needs Statement

Metrics:

- A minimum of 20 supply chain companies participate
- A minimum of 10 projects implemented
- Available hours used on the equipment by suppliers
- Number of projects
- Equipment hours used
- Equipment ordered by suppliers

I look forward to catching up with you.

Thanks!
Marty

Martin Romitti, Ph.D.
Senior Fellow
Center for Regional Economic Competitiveness
1700 N. Moore Street, Suite 2225
Arlington, VA 22210
TEL: 573.808.1536
mromitti@crec.net

From: Devins, Kenneth <kdevins@belcan.com>
Sent: Thursday, March 2, 2017 9:59 AM
To: rarthur@crec.net
Cc: mromitti@crec.net; cbraunlich@crec.net; Molina-Rios, Carmen
Subject: RE: OEA CT-RADE

Randall,

As requested here are the hours for training and operation of the GOM ATOS scanner at CCAT/ITC totaling 1180..

How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?

550 hours
Activities included:
Informal demonstrations to visitors touring AMC
Formal demonstrations to 13 companies
4 active projects
1 complete project

How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?

630
Activities included:
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

Ken

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Office Phone 860-683-5367
Cell Phone 203-584-8958

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Best,

Task 5 – Manufacturing Innovation

Increase CT Companies cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

Sub Tasks:		
5.1 Hire technical coordinator	Complete 11/15/16	Belcan
5.2 Acquire and/or lease machinery, equipment	Complete 11/15/16	CCAT
5.3 Installation of machinery and equipment	Complete 11/15/16	CCAT
5.4 Perform outreach to supply chain	Initial survey 1/31/16, follow-up ongoing	DECD / Belcan
5.5 Identify training needs	GOM ATOS Complete 11/15/16	CCAT
5.6 Deliver training (if/when appropriate)	Complete 12/7/16	CCAT
5.7 Process Improvement project implementation	TBD	Belcan /CCAT /Draper
5.8 Analyze/report on manufacturing innovation	Preliminary scheduled for 7/20/17	Draper
Deliverable:		
• CT Innovation Technology Center is established, operational, and staffed	Complete 12/15/16	CCAT
• Suppliers are aware of ITC and its capabilities	Initial survey 1/31/16, follow-up ongoing	DECD / Belcan
• Participating companies staff trained on new processes and technologies	1/11/2017	Draper / CCAT
• Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies	Ongoing	Belcan /CCAT /Draper
• Manufacturing Technology Innovation Needs Statement	Computed Tomography	Belcan /CCAT
Metrics:		
• A minimum of 20 supply chain companies participate	19	Draper - 8, CCAT - 11
• A minimum of 10 projects implemented	17	Draper 13/ CCAT 4
• Available hours used on the equipment by suppliers	1600	CCAT
• Number of projects	24	Belcan /CCAT /Draper
• Equipment hours used	1200	CCAT
• Equipment ordered by suppliers	Yes	Draper / CCAT
• Number of processes implementing by supplier in their facility	6	Draper / CCAT

From:	Molina-Rios, Carmen
Sent time:	03/08/2017 09:46:51 AM
To:	rarthur@crec.net; Devins, Kenneth <kdevins@belcan.com>
Subject:	RE: OEA CT-RADE

Ken,

Thank you for sharing the information with Randall. I would only add in the numbers of projects implemented by CCAT and I would indicate their name in the right hand column. Right now, it just shows Draper.

Thanks,

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Wednesday, March 08, 2017 8:32 AM
To: rarthur@crec.net
Cc: Molina-Rios, Carmen
Subject: RE: OEA CT-RADE

Randall,
Attached is the summary of activities that you requested.
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: rarthur@crec.net [mailto:rarthur@crec.net]
Sent: Monday, March 06, 2017 11:23 AM
To: Devins, Kenneth
Subject: RE: OEA CT-RADE

Hi Ken,

Below is Section 5 of the OEA final report on the OEA Connecticut RADE project.

Task 5 – Manufacturing Innovation

Increase Connecticut companies' cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the Connecticut supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

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Number of processes implemented by suppliers in their facility Best,

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And do you also know the cost of the scanner?

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From: mromitti@crec.net
Sent time: 08/28/2017 11:18:58 AM
To: rarthur@crec.net; Devins, Kenneth <kdevins@belcan.com>
Cc: Molina-Rios, Carmen
Subject: Re: OEA CT-RADE

Great. I have sent a meeting notice for this Wednesday, August 30 from 10:30 am - 11:30 am Eastern. I have included a conference number:
Dial: [redacted] Code: [redacted]
Talk to you on Wednesday. - Marty

From: Devins, Kenneth <kdevins@belcan.com>
Sent: Monday, August 28, 2017 9:55 AM
To: mromitti@crec.net
Cc: Molina-Rios, Carmen
Subject: RE: OEA CT-RADE

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I look forward to our discussion.
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I look forward to catching up with you.

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Martin Romitti, Ph.D.
Senior Fellow
Center for Regional Economic Competitiveness
1700 N. Moore Street, Suite 2225
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TEL: 573.808.1536
mromitti@crec.net

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To: rarthur@crec.net
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Informal training and practice on operation of hardware and software

Ken

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Any information you can provide, is obviously greatly appreciated.

Best,

From:	Molina-Rios, Carmen
Sent time:	03/02/2017 05:22:34 PM
To:	Devins, Kenneth <kdevins@belcan.com>
Subject:	RE: OEA CT-RADE

Hi Ken,

Sure. I will help him. Let him know to call me or email me to schedule time.

Also, please tell your business office that I will be processing the invoices by early next week. Let me know if there is any questions, they are to contact me not DECD's business office since they only process upon my approval.

Thanks,

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Thursday, March 02, 2017 4:57 PM
To: Molina-Rios, Carmen
Subject: FW: OEA CT-RADE

Carmen,
Randall Arthur from CREC is asking for information about the purchase of the GOM ATOS. He participated in their visit with Marty Romotti.
Can you help with this?
Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: rarthur@crec.net [mailto:rarthur@crec.net]
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Cell Phone 203-584-8958

From: rarthur@crec.net [mailto:rarthur@crec.net]
Sent: Monday, February 27, 2017 2:52 PM
To: Devins, Kenneth
Cc: mromitti@crec.net; cbraunlich@crec.net
Subject: OEA CT-RADE

Hi Ken,

Great seeing you last week. I am beginning to write up CCAT's section of the final report. There are just a few details that I am missing.

They include:
1. How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?
2. How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?

Any information you can provide, is obviously greatly appreciated.

Best,

From:	rarthur@crec.net
Sent time:	03/02/2017 03:41:39 PM
To:	Devins, Kenneth <kdevins@belcan.com>
Cc:	mromitti@crec.net; cbraunlich@crec.net; Molina-Rios, Carmen
Subject:	RE: OEA CT-RADE

Ah fantastic Ken. Thanks

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Thursday, March 2, 2017 11:00 AM
To: rarthur@crec.net
Cc: mromitti@crec.net; cbraunlich@crec.net; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Subject: RE: OEA CT-RADE

Randall,

As requested here are the hours for training and operation of the GOM ATOS scanner at CCAT/ITC totaling 1180..

How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?

550 hours
Activities included:
Informal demonstrations to visitors touring AMC
Formal demonstrations to 13 companies
4 active projects
1. *complete project*

How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?

630
Activities included:
Preparing space at the AMC for the ITC
Managing the delivery and installment of the GOM ATOS
Formal training provided by 3D Systems
Informal training and practice on operation of hardware and software

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: rarthur@crec.net [mailto:rarthur@crec.net]
Sent: Monday, February 27, 2017 2:52 PM
To: Devins, Kenneth
Cc: mromitti@crec.net; cbraunlich@crec.net
Subject: OEA CT-RADE

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They include:
1. How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?

2. How many hours have CCAT staff spent on learning how to operate GOM ATOS scanner?

Any information you can provide, is obviously greatly appreciated.

Best,

From:	rarthur@crec.net
Sent time:	03/03/2017 06:15:04 PM
To:	Devins, Kenneth <kdevins@belcan.com>
Cc:	Molina-Rios, Carmen
Subject:	Re: OEA CT-RADE

Ok will do. Thanks again

Sent from my iPhone

On Mar 3, 2017, at 8:06 AM, Devins, Kenneth <kdevins@belcan.com> wrote:

> Randall,
> Please contact Carmen Molina-Rios at DECD to answer your question on the timeline of events for CCAT getting approval to use OEA funds to purchase the bluelight scanner.
> Ken
>
> Belcan Engineering
> 175 Addison Rd.
> Windsor, Ct 06095
> Office Phone 860-683-5367
> Cell Phone 203-584-8958
>
> ---
>
> **From:** rarthur@crec.net [mailto:rarthur@crec.net]
> **Sent:** Thursday, March 02, 2017 3:43 PM
> **To:** Devins, Kenneth
> **Subject:** RE: OEA CT-RADE
>
> Ken,
>
> Do you happen to know the timeline of events for CCAT getting approval to use OEA funds to purchase the bluelight scanner?
>
> And do you also know the cost of the scanner?
>
> Best,
>
> ---
>
> **From:** Devins, Kenneth [mailto:kdevins@belcan.com]
> **Sent:** Thursday, March 2, 2017 11:00 AM
> **To:** rarthur@crec.net
> **Cc:** mromitti@crec.net; cbraunlich@crec.net; Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
> **Subject:** RE: OEA CT-RADE
>
> Randall,
>
> As requested here are the hours for training and operation of the GOM ATOS scanner at CCAT/ITC totaling 1180..
>
> How many hours have CCAT staff spent demonstrating the GOM ATOS scanner to CT manufacturers?
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> *550 hours*
> *Activities included:*
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> *Formal demonstrations to 13 companies*
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> 1. *complete project*

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Activities included:
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Informal training and practice on operation of hardware and software

Ken

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Any information you can provide, is obviously greatly appreciated.

Best,

From:	Molina-Rios, Carmen
Sent time:	01/31/2017 12:34:03 PM
To:	Susan Palisano <spalisano@ccat.us>
Subject:	RE: OEA RADE interim report information

Hi Sue,

Thanks. I'm back at my office but won't be available until 1:30. Call me any time after that.

Carmen

From: Susan Palisano [mailto:spalisano@ccat.us]
Sent: Tuesday, January 31, 2017 11:40 AM
To: Molina-Rios, Carmen
Subject: FW: OEA RADE interim report information
Importance: High

Carmen – below is the information to be inserted into the quarterly report for Task 5. Sorry for the delay.

Task 5 **Progress/Activities:**	**Manufacturing Innovation** **In support of establishment of the ITC, CCAT staff:** • Accepted delivery of GOM ATOS blue light scanner • Worked with 3DSystems to install, de-bug and calibrate equipment • Received training from 3DSystems • Conducted another round of outreach • Validated demonstration test methodology and procedures • Engaged 5 companies - Flanagan, GKN, Hubbell, NEAP, Phoenix • Started 3 demonstration projects – Flanagan, GKN, NEAP • Investigated CT X-ray scanner technology

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From:	Lisa Wilson <lwilson@ccat.us>
Sent time:	09/19/2017 10:40:10 AM
To:	Molina-Rios, Carmen
Cc:	Fernandez, Barbara; John Glidden <jglidden@ccat.us>; Elliot Ginsberg <EGINSBERG@ccat.us>
Subject:	RE: RADE 2 - Balance & Final Payment Request
Attachments:	CCAT Task five underrun 091817.docx

Hi Carmen,

Please find attached our explanation as to why we have a balance of approximately $140k.

Let me know if you have any questions.

Thanks,
Lisa

Lisa Wilson
Accounting Manager
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street
East Hartford, CT 06108
Phone: 860-282-4988

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Monday, September 18, 2017 4:48 PM
To: Lisa Wilson
Cc: Fernandez, Barbara; John Glidden; Elliot Ginsberg
Subject: RE: RADE 2 - Balance & Final Payment Request

Hi Lisa,

Thank you for your payment request and the information. Please provide an explanation as to why there will be a balance of approximately $140,000. I will need the explanation by tomorrow. I've shared with OEA the numbers and they are asking for an explanation as well.

Thanks,

Carmen

From: Lisa Wilson [mailto:lwilson@ccat.us]
Sent: Monday, September 18, 2017 4:29 PM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: Fernandez, Barbara <Barbara.Fernandez@ct.gov>; John Glidden <jglidden@ccat.us>; Elliot Ginsberg <EGINSBERG@ccat.us>
Subject: RE: RADE 2 - Balance & Final Payment Request

Hi Carmen,

Attached is our payment request for actual expenses incurred from July 1, 2017 – September 15, 2017. Our final estimated payment request will be approximately another $37k leaving a balance at end of contract of approximately $140,000. I will send you our final payment request by the second week of October.

I hope this helps.

Lisa

Lisa Wilson
Accounting Manager
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street
East Hartford, CT 06108

Phone: 860-282-4988

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Monday, September 18, 2017 12:58 PM
To: John Glidden; Lisa Wilson
Cc: Fernandez, Barbara
Subject: RADE 2 - Balance & Final Payment Request

Hi John and Lisa,

Please provide me the balance owed to you, amount of your next payment request and when should I expect it. I need it as soon as possible. OEA is requesting this information.

Thank you,

Carmen

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CCAT is estimating an underrun on Task #5 of our contract with DECD in the amount of approximately $140,000. CCAT's statement of work included preparation of space at the AMC, coordination and installation of state purchased equipment, and supplier projects on state owned equipment. CCAT's project plan was to install three pieces of state purchased equipment by late 2015 which would allow for approximately nine months for training and supplier projects performed by CCAT personnel. However, the first piece of equipment (GOM ATOS Blue light scanner) was delivered in the 4th quarter of 2016 and the second piece of equipment (CT X-ray Scanner) was delivered in the 3rd quarter of 2017. During this period, CCAT's task #5 was extended by six month twice to the current end date of 9/30/17. Even with the extension, the amount of time CCAT actually had the equipment for projects with the supply chain was greatly reduced. Specifically, the first piece of equipment was only operational at CCAT's facility for approximately nine month, the second piece was received a month and a half before the contracts expired, and the third piece of equipment never arrived. CCAT did accelerate efforts for projects with the supply chain to use the equipment during the time it was in our facility. But, there was not sufficient time to spend the remaining budget without use of the equipment as originally envisioned.

From:	Molina-Rios, Carmen
Sent time:	12/08/2016 12:02:53 PM
To:	Tom Maloney <tmaloney@ccat.us>; Devins, Kenneth <kdevins@belcan.com>
Cc:	Fernandez, Barbara; Don Balducci <dbalducci@ccat.us>
Subject:	RE: RADE 2 - GKN Supplier Equipment

Hi Tom and Ken,

We have only $450,000 in the budget. Does this meet the spec of what's been approved by MIF for High Rate Additive Project or EDA? Also, we will need a summary of the program and draft budget to better understand the desired result as well as how this technology will be used in other companies not GKN.

I'm available on Tuesday morning. Can we schedule a call for 9:30? I would need the summary and draft budget for our conversation so that we I can be more knowledgeable.

Thank you for moving this along. We are eager to get this going.

Please let me know your availability.

Carmen

From: Tom Maloney [mailto:tmaloney@ccat.us]
Sent: Thursday, December 08, 2016 9:13 AM
To: Molina-Rios, Carmen
Cc: Fernandez, Barbara; 'kdevins@belcan.com' (kdevins@belcan.com); Don Balducci
Subject: RADE 2 - GKN Supplier Equipment

Hell Carmen-
I have had discussion with GKN and P&W regarding equipment. Ken and I spoke briefly yesterday by phone. The priority of GKN/P&W is to obtain the CT Scan machine – model number is per the attached. Price tag is between $500K-$550K. This type of equipment is also needed for the CCAT/DECD High Rate Additive Project so it will be very useful on several levels. If needed, we can talk about possible cost sharing among EDA and High Rate Additive Programs?
Ken and I can follow up with you when you are available.
Thank you,
Tom

==========
Hello Carmen-
Thank you for your note. Yes I did speak with GKN and I know what metrology equipment is their top priority. It is a type of machine that can examine the "inside" of parts and it complements the existing GOM Atos systems that examines the "outside" of parts. Pratt&Whitney and Electric Boat – and their suppliers – will also benefit. I will work with Ken for next steps and I can talk with you at any time.
Thank you Carmen,
Tom

Dr. Thomas M. Maloney
Chief Technology Officer
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street, Suite 106
East Hartford, CT 06108
Phone: 860.282.4936 (x-436)
E-Mail: tmaloney@ccat.us

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 16, 2016 4:19 PM
To: Tom Maloney
Cc: 'kdevins@belcan.com'; Fernandez, Barbara; Don Balducci
Subject: RADE 2 - GKN Supplier Equipment

Hi Tom,

I'm following up on your conversation with Barbara where you two talked about acquiring equipment that could help GKN and its suppliers under the RADE 2 project Task 5. The purpose of this task is to increase CT companies cost competitiveness

through specialized process innovations and technologies that will address prioritized areas of interest of the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

As you know Belcan has been contracted with DECD to perform the technology coordinator function of task 5. Please work with Ken Devins of Belcan to outline the next steps. Have you contacted GKN? If not maybe you and Ken can meet with GKN to understand the type of equipment. Once you two have had a chance to think through the appropriate next steps, I would like to have a conversation to bring me up to speed.

Thanks,

Carmen

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From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	12/08/2016 12:06:35 PM
To:	Molina-Rios, Carmen; Tom Maloney <tmaloney@ccat.us>
Cc:	Fernandez, Barbara; Don Balducci <dbalducci@ccat.us>
Subject:	RE: RADE 2 - GKN Supplier Equipment

Carmen, Tom,

I am available for the 9:30 call on Tuesday.

Ken

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Thursday, December 08, 2016 12:03 PM
To: 'Tom Maloney'; Devins, Kenneth
Cc: Fernandez, Barbara; Don Balducci
Subject: RE: RADE 2 - GKN Supplier Equipment

Hi Tom and Ken,

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Sent: Thursday, December 08, 2016 9:13 AM
To: Molina-Rios, Carmen
Cc: Fernandez, Barbara; 'kdevins@belcan.com' (kdevins@belcan.com); Don Balducci
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E-Mail: tmaloney@ccat.us

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Cc: 'kdevins@belcan.com'; Fernandez, Barbara; Don Balducci
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From: Molina-Rios, Carmen
Sent time: 12/14/2016 10:11:38 AM
To: Molina-Rios, Carmen; Devins, Kenneth <kdevins@belcan.com>; Tom Maloney <tmaloney@ccat.us>
Subject: RE: RADE 2 - GKN Supplier Equipment

Okay, both of you bear with me. I'm on medication for my back and thought were had scheduled a follow up call for today on GKN. Ignore my previous message.

Have a great day.

Carmen

From: Molina-Rios, Carmen
Sent: Wednesday, December 14, 2016 10:02 AM
To: 'Devins, Kenneth'; 'Tom Maloney'
Subject: RE: RADE 2 - GKN Supplier Equipment

Ken and Tom,

My apologies, I got the time and date for us to talk. Can I ask to reschedule this call to the afternoon? Are you guys available?

I'm so sorry.

Thanks,

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Thursday, December 08, 2016 12:07 PM
To: Molina-Rios, Carmen; 'Tom Maloney'
Cc: Fernandez, Barbara; Don Balducci
Subject: RE: RADE 2 - GKN Supplier Equipment

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Sent: Thursday, December 08, 2016 9:13 AM
To: Molina-Rios, Carmen

Cc: Fernandez, Barbara; 'kdevins@belcan.com' (kdevins@belcan.com); Don Balducci
Subject: RADE 2 - GKN Supplier Equipment

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Sent: Wednesday, November 16, 2016 4:19 PM
To: Tom Maloney
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From: Tom Maloney <tmaloney@ccat.us>
Sent time: 11/17/2016 07:39:27 AM
To: Molina-Rios, Carmen
Cc: kdevins@belcan.com; Fernandez, Barbara; Don Balducci <dbalducci@ccat.us>
Subject: RE: RADE 2 - GKN Supplier Equipment

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Subject: RADE 2 - GKN Supplier Equipment

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Thanks,

Carmen

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From:	Fernandez, Barbara
Sent time:	11/17/2016 09:53:38 AM
To:	Molina-Rios, Carmen
Subject:	RE: RADE 2 - GKN Supplier Equipment

Yes it does , my only question is whether it aligns with the grant.

Barbara Fernandez,Director
Business Development
Dept. of Economic and Community Dev.
505 Hudson Street
Hartford, CT 06106
Tel: 860-270-8025
Fax:860-707-1809
E-mail: barbara.fernandez@ct.gov

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still revolutionary
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From: Molina-Rios, Carmen
Sent: Thursday, November 17, 2016 9:53 AM
To: Fernandez, Barbara
Subject: FW: RADE 2 - GKN Supplier Equipment

Barb,

Is this aligned with your earlier conversation with Tom Maloney?

Carmen

Sent from my Windows Phone

From: Tom Maloney
Sent: 11/17/2016 7:39 AM
To: Molina-Rios, Carmen
Cc: 'kdevins@belcan.com'; Fernandez, Barbara; Don Balducci
Subject: RE: RADE 2 - GKN Supplier Equipment

Hello Carmen-
Thank you for your note. Yes I did speak with GKN and I know what metrology equipment is their top priority. It is a type of machine that can examine the "inside" of parts and it complements the existing GOM Atos systems that examines the "outside" of parts. Pratt&Whitney and Electric Boat – and their suppliers – will also benefit. I will work with Ken for next steps and I can talk with you at any time.
Thank you Carmen,
Tom

Dr. Thomas M. Maloney
Chief Technology Officer
Connecticut Center for Advanced Technology, Inc.
222 Pi kin Street, Suite 106
East Hartford, CT 06108
Phone: 860.282.4936 (x-436)
E-Mail: tmaloney@ccat.us

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 16, 2016 4:19 PM
To: Tom Maloney
Cc: 'kdevins@belcan.com'; Fernandez, Barbara; Don Balducci
Subject: RADE 2 - GKN Supplier Equipment

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From:	Molina-Rios, Carmen
Sent time:	11/17/2016 09:59:26 AM
To:	Fernandez, Barbara
Subject:	RE: RADE 2 - GKN Supplier Equipment

As long as it is on defense work and F35; if not I would need an amendment.

Sent from my Windows Phone

From: Fernandez, Barbara
Sent: 11/17/2016 9:53 AM
To: Molina-Rios, Carmen
Subject: RE: RADE 2 - GKN Supplier Equipment

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Carmen

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E-Mail: tmaloney@ccat.us

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 16, 2016 4:19 PM
To: Tom Maloney
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From:	Molina-Rios, Carmen
Sent time:	12/09/2016 09:27:54 AM
To:	Devins, Kenneth <kdevins@belcan.com>; Tom Maloney <tmaloney@ccat.us>
Cc:	Fernandez, Barbara; Don Balducci <dbalducci@ccat.us>
Subject:	RE: RADE 2 - GKN Supplier Equipment

Great. Let's talk then.

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Thursday, December 08, 2016 12:07 PM
To: Molina-Rios, Carmen; 'Tom Maloney'
Cc: Fernandez, Barbara; Don Balducci
Subject: RE: RADE 2 - GKN Supplier Equipment

Carmen, Tom,

I am available for the 9:30 call on Tuesday.

Ken

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Thursday, December 08, 2016 12:03 PM
To: 'Tom Maloney'; Devins, Kenneth
Cc: Fernandez, Barbara; Don Balducci
Subject: RE: RADE 2 - GKN Supplier Equipment

Hi Tom and Ken,

We have only $450,000 in the budget. Does this meet the spec of what's been approved by MIF for High Rate Additive Project or EDA? Also, we will need a summary of the program and draft budget to better understand the desired result as well as how this technology will be used in other companies not GKN.

I'm available on Tuesday morning. Can we schedule a call for 9:30? I would need the summary and draft budget for our conversation so that we I can be more knowledgeable.

Thank you for moving this along. We are eager to get this going.

Please let me know your availability.

Carmen

From: Tom Maloney [mailto:tmaloney@ccat.us]
Sent: Thursday, December 08, 2016 9:13 AM
To: Molina-Rios, Carmen
Cc: Fernandez, Barbara; 'kdevins@belcan.com' (kdevins@belcan.com); Don Balducci
Subject: RADE 2 - GKN Supplier Equipment

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Thank you Carmen,

Tom

Dr. Thomas M. Maloney
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E-Mail: tmaloney@ccat.us

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 16, 2016 4:19 PM
To: Tom Maloney
Cc: 'kdevins@belcan.com'; Fernandez, Barbara; Don Balducci
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From:	Molina-Rios, Carmen
Sent time:	12/14/2016 10:02:14 AM
To:	Devins, Kenneth <kdevins@belcan.com>; Tom Maloney <tmaloney@ccat.us>
Subject:	RE: RADE 2 - GKN Supplier Equipment

Ken and Tom,

My apologies, I got the time and date for us to talk. Can I ask to reschedule this call to the afternoon? Are you guys available?

I'm so sorry.

Thanks,

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Thursday, December 08, 2016 12:07 PM
To: Molina-Rios, Carmen; 'Tom Maloney'
Cc: Fernandez, Barbara; Don Balducci
Subject: RE: RADE 2 - GKN Supplier Equipment

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From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Thursday, December 08, 2016 12:03 PM
To: 'Tom Maloney'; Devins, Kenneth
Cc: Fernandez, Barbara; Don Balducci
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Sent: Thursday, December 08, 2016 9:13 AM
To: Molina-Rios, Carmen
Cc: Fernandez, Barbara; 'kdevins@belcan.com' (kdevins@belcan.com); Don Balducci
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E-Mail: tmaloney@ccat.us

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Wednesday, November 16, 2016 4:19 PM
To: Tom Maloney
Cc: 'kdevins@belcan.com'; Fernandez, Barbara; Don Balducci
Subject: RADE 2 - GKN Supplier Equipment

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E-Mail: tmaloney@ccat.us

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From: Tom Maloney <tmaloney@ccat.us>
Sent time: 12/09/2016 07:47:05 AM
To: Devins, Kenneth <kdevins@belcan.com>
Cc: Molina-Rios, Carmen; Fernandez, Barbara; Don Balducci <dbalducci@ccat.us>
Subject: Re: RADE 2 - GKN Supplier Equipment

Thank you Ken and Carmen,
I too will be available,
Tom

Sent from my iPhone

On Dec 8, 2016, at 12:06 PM, "Devins, Kenneth" <kdevins@belcan.com> wrote:

> Carmen, Tom,
>
> I am available for the 9:30 call on Tuesday.
>
> Ken
>
> ---
>
> **From:** Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
> **Sent:** Thursday, December 08, 2016 12:03 PM
> **To:** 'Tom Maloney'; Devins, Kenneth
> **Cc:** Fernandez, Barbara; Don Balducci
> **Subject:** RE: RADE 2 - GKN Supplier Equipment
>
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> Please let me know your availability.
>
> Carmen
>
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> **Sent:** Thursday, December 08, 2016 9:13 AM
> **To:** Molina-Rios, Carmen
> **Cc:** Fernandez, Barbara; 'kdevins@belcan.com' (kdevins@belcan.com); Don Balducci
> **Subject:** RADE 2 - GKN Supplier Equipment
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From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	12/09/2016 04:34:21 PM
To:	Molina-Rios, Carmen
Cc:	Holmes, Steven M. <sholmes@draper.com>; Wayne Sumple <wsumple@ccat.us>
Subject:	RE: RADE 2 - Timeline and Milestones
Attachments:	DECD Supplier List 120916.xlsx

Carmen,

Based on discussions with Draper and CCAT I have compiled a status of supplier participation in RADE 2 Task 5. There are 13 active projects, 29 On Hold (potential & awaiting response) and 18 Inactive with the suppliers expressing no interest.

A detailed summary is provided in the attachment. The attachment contains three worksheets.
The first is a status and schedule addressing the Task 5 tasks, deliverables and metrics.
The second tracks the process flow for the 13 suppliers that are active and the 29 that have expressed interest in participating.
The third is a summary of all 60 suppliers that have been identified as possible customers for Task 5 participation.

Of the 13 active projects Draper has completed 2, is actively engaged with 6 and awaiting clarification on 1. I will work with Steve Holmes to define closure dates for these 7 remaining active projects.

There are 4 active projects at CCAT. The GOM ATOS Scanner will be available for work in January. I will work with Wayne Sumple to develop specific timelines as these projects develop.

Please review the attachment and provide recommendations for improvement.

Thanks,
Ken

Ken Devins
Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, December 09, 2016 10:38 AM
To: Devins, Kenneth
Subject: RADE 2 - Timeline and Milestones

Hi Ken,

Now that you have had time to review the deliverables, metrics of Task 5 as well as talk with CCAT and Draper, please provide me with a timeline and milestones by Tuesday.

Thanks,

Carmen

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Task 5 – Manufacturing Innovation

Increase CT Companies' cost competitiveness through specialized process innovations and technologies that will address prioritized areas of interest to the CT supply chain to leverage key defense work and assist in meeting immediate demand for the ramp-up in aerospace production.

	2016				2017			Goal
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	
Sub Tasks:								
5.1 Hire technical coordinator	In work	In work	Complete					
5.2 Acquire and/or lease machinery, equipment	In work	In work	Complete					
5.3 Installation of machinery and equipment	In work	In work	In work	Complete				
5.4 Perform outreach to supply chain	Ongoing							
5.5 Identify training needs								
5.5.1 GOM ATOS Scanner	Complete							
5.5.2 Supplier	TBD							
5.6 Deliver training (if/when appropriate)								
5.6.1 GOM ATOS Scanner			Initiated	Ongoing	Complete			
5.6.2 Supplier	TBD							
5.7 Process Improvement project implementation	See Supplier Milestones Worksheet							
5.8 Analyze/report on manufacturing innovation	Monthly						Final	
Deliverable:								
• CT Innovation Technology Center is established, operational, and staffed	In work	In work	In work	Complete				
• # Suppliers are aware of ITC and its capabilities	55	55	55	60				
• Participating companies' staff trained on new processes and technologies	8	8	8	8				
• Reporting on the effectiveness and best practices of manufacturing innovation methodologies & technologies at participating companies	Monthly						Final	
• Manufacturing Technology Innovation Needs Statement	TBD	TBD	TBD	TBD				
Metrics:								
• A minimum of 20 supply chain companies participate	9	9	9	13+A4				20
• A minimum of 10 projects implemented	0	0	2	2				10
• Available hours used on the equipment by suppliers	TBD	TBD	TBD	TBD				
• Number of projects	9	9	9	12				
• Equipment hours used	TBD	TBD	TBD	TBD				
• Equipment ordered by suppliers	TBD	TBD	TBD	TBD				
• Number of processes implementing by supplier in their facility	0	0	2	TBD				

Milestones and Timeline

Project Type	Project Description	Supplier Name	Status	Project Lead	Contacted	NDA	Site Visit	Agreement	Letter of Intent	Project Proposal	Execute	Final Report
Process Improvement	[redacted]	Alloy Specialties, Inc.	Active	Draper			6/2/2016					
Scanning		Atlas	Active	CCAT								
Process Improvement		Avalon Advanced Tech	Active	Draper								
Process Improvement		CAM Group LLC	Active	Draper			6/2/2016					
Process Improvement		Deburring House Inc.	Active	Draper			6/1/2016					1130/16
Process Improvement		Flanagan Industries	Active	Draper			8/17/2016					
Scanning		Flanagan Industries	Active	CCAT								
Scanning		GKN Aerospace Newington LLC	Active	CCAT								
Process Improvement		GKN Aerospace Services Structures Corp	Active	Draper			7/26/2016					
Process Improvement		Habco Industries	Active	Draper			5/4/2016					1130/16
Process Improvement		Jonal Laboratories, Inc.	Active	Draper			7/20/2016					
Scanning		New England Airfoil Products	Active	CCAT								
Process Improvement		Polar Corporation	Active	Draper			9/22/2016					
Process Improvement		Admill Machine	On Hold	Draper	9/22/2016							
Process Improvement		Aero Gear, Inc.	On Hold	Draper	9/22/2016							
Process Improvement		AGC Incorporated	On Hold	Draper	9/22/2016							
Process Improvement		Airex Rubber Products Corp.	On Hold	Draper	9/20/2016							
Process Improvement		Alinabal, Inc.	On Hold	Draper	9/22/2016							
Scanning		B&E Precision Aircraft Components	On Hold	CCAT								
Process Improvement		Bauer, Inc.	On Hold	Draper	9/22/2016							
Process Improvement		Birken Manufacturing	On Hold	Draper	9/22/2016							
Process Improvement		Budney Aerospace, Inc.	On Hold	Draper	9/19/2016							
Process Improvement		Cambridge Specialty Co	On Hold	Draper	4/14/2016							
Scanning		Curtis WrightSurface Technologies	On Hold	CCAT								
Process Improvement		E&S Gage Company	On Hold	Draper	9/20/2016							
Process Improvement		E.A. Patten Co	On Hold	Draper	9/22/2016							

Process Improvement	[redacted]	EDAC Aero.	On Hold	Draper	9/19/2016								
Process Improvement		Harco Laboratories, Inc.	On Hold	Draper	9/20/2016								
Process Improvement		Har-Conn Chrome Company	On Hold	Draper									
Scanning		LFI Inc.	On Hold	CCAT									
Process Improvement		Metallizing Service Co.	On Hold	Draper	9/20/2016								
Process Improvement		Numet Machining Techniques, Inc.	On Hold	Draper	9/22/2016								
Process Improvement		Paradigm Precision	On Hold	Draper	10/27/2016								
Process Improvement		Praxair Surface Technologies, Inc.	On Hold	Draper	9/20/2016								
Process Improvement		Ramar-Hall, Inc.	On Hold	Draper	9/22/2016								
Process Improvement		Reno Machine Company, Inc.	On Hold	Draper	10/27/2016								
Process Improvement		Satellite Tool & Machine Co.	On Hold	Draper	9/22/2016								
Process Improvement		Service Steel Aerospace	On Hold	Draper	9/22/2016								
Process Improvement		Sterling Engineering Corp.	On Hold	Draper	9/20/2016								
Process Improvement		Turbine Technologies, Inc.	On Hold	Draper	9/20/2016								
Scanning		Turbine Technologies, Inc.	On Hold	CCAT									
Scanning		Turbocam	On Hold	CCAT									

Supplier Screening & Participation Status

Project Type	Project Description	Supplier Name	Status	Project Lead	Results of Phone Screen	Follow Up/Notes
Process Improvement	[redacted]	Alloy Specialties, Inc.	Active	Draper	Confirmed Interested	[redacted]
Scanning		Atlas	Active	CCAT	Investigating	
Process Improvement		Avalon Advanced Tech	Active	Draper	Initial Interest	
Process Improvement		CAM Group LLC	Active	Draper	Confirmed Interested	
Process Improvement		Deburring House Inc.	Active	Draper	Confirmed Interested	
Process Improvement		Flanagan Industries	Active	Draper	Confirmed Interested	
Scanning		Flanagan Industries	Active	CCAT	Investigating	
Scanning		GKN Aerospace Newington LLC	Active	CCAT	Investigating	
Process Improvement		GKN Aerospace Services Structures Corp	Active	Draper	Confirmed Interested	
Process Improvement		Habco Industries	Active	Draper	Confirmed Interested	
Process Improvement		Jonal Laboratories, Inc.	Active	Draper	Confirmed Interested	
Scanning		New England Airfoil Products	Active	CCAT	Investigating	
Process Improvement		Polar Corporation	Active	Draper	Confirmed Interested	
Process Improvement		ACMT, Inc.	Inactive	Draper	Not Interested	
Process Improvement		Aerospace Testing Laboratory, Inc.	Inactive	Draper	Not Interested	
Process Improvement		CT Tool & Manufacturing Co.	Inactive	Draper	Not Interested	
Process Improvement		E/M Coating Services	Inactive	Draper	Not Interested	
Process Improvement		GKN Aerospace Newington LLC	Inactive	Draper	Not Interested	
Process Improvement		J&L Machine Company Inc.	Inactive	Draper	Not Interested	
Process Improvement		Metals Testing Company	Inactive	Draper	Not Interested	
Process Improvement		New England Metal Finishing	Inactive	Draper	Not Interested	
Process Improvement		Park City Packaging, Inc.	Inactive	Draper	Not Interested	
Process Improvement		Plainville Plating Co.	Inactive	Draper	Not Interested	
Process Improvement		Polamer Precision	Inactive	Draper	No Response	
Process Improvement		Quality Engineering Services	Inactive	Draper	Not Interested	
Process Improvement		Skillcraft Machine Tool Co.	Inactive	Draper	Not Interested	

Process Improvement	[redacted]	Spartan Aerospace, LLC	Inactive	Draper	Not Interested
Process Improvement		Technical metal Finishing	Inactive	Draper	Not Interested
Process Improvement		Timken Aerospace Drive Systems	Inactive	Draper	No Response
Process Improvement		West Hartford Tool & Die Co.	Inactive	Draper	Not Interested
Process Improvement		Whitcraft, LLC	Inactive	Draper	No Response
Process Improvement		Admill Machine	On Hold	Draper	Initial Interest
Process Improvement		Aero Gear, Inc.	On Hold	Draper	No Response
Process Improvement		AGC Incorporated	On Hold	Draper	No Response
Process Improvement		Airex Rubber Products Corp.	On Hold	Draper	No Response
Process Improvement		Alinabal, Inc.	On Hold	Draper	No Response
Scanning		B&E Precision Aircraft Components	On Hold	CCAT	Potential
Process Improvement		Bauer, Inc.	On Hold	Draper	Initial Interest
Process Improvement		Birken Manufacturing	On Hold	Draper	No Response
Process Improvement		Budney Aerospace, Inc.	On Hold	Draper	Initial Interest
Process Improvement		Cambridge Specialty Co	On Hold	Draper	No Response
Scanning		Curtis WrightSurface Technologies	On Hold	CCAT	Potential
Process Improvement		E&S Gage Company	On Hold	Draper	No Response
Process Improvement		E.A. Patten Co	On Hold	Draper	No Response
Process Improvement		EDAC Aero.	On Hold	Draper	No Response
Process Improvement		Harco Laboratories, Inc.	On Hold	Draper	No Response
Process Improvement		Har-Conn Chrome Company	On Hold	Draper	No Response
Scanning		LFI Inc.	On Hold	CCAT	Potential
Process Improvement		Metallizing Service Co.	On Hold	Draper	No Response
Process Improvement		Numet Machining Techniques, Inc.	On Hold	Draper	Initial Interest
Process Improvement		Paradigm Precision	On Hold	Draper	Initial Interest
Process Improvement		Praxair Surface Technologies, Inc.	On Hold	Draper	No Response
Process Improvement		Ramar-Hall, Inc.	On Hold	Draper	No Response
Process Improvement		Reno Machine Company, Inc.	On Hold	Draper	Initial Interest

Process Improvement	[redacted]	Satellite Tool & Machine Co.	On Hold	Draper	No Response	[redacted]
Process Improvement		Service Steel Aerospace	On Hold	Draper	No Response	
Process Improvement		Sterling Engineering Corp.	On Hold	Draper	No Response	
Process Improvement		Turbine Technologies, Inc.	On Hold	Draper	No Response	
Scanning		Turbine Technologies, Inc.	On Hold	CCAT	Potential	
Scanning		Turbocam	On Hold	CCAT	Potential	

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	12/09/2016 04:41:07 PM
To:	Molina-Rios, Carmen
Subject:	RE: RADE 2 - Timeline and Milestones

Carmen,

Bi-weekly 10 AM Monday phone calls are good. It is best to call my cell at 203-584-8958.

Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, December 09, 2016 4:37 PM
To: Devins, Kenneth
Cc: Fernandez, Barbara
Subject: RE: RADE 2 - Timeline and Milestones

Hi Ken,

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Please let me know.

Thanks,

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, December 09, 2016 4:34 PM
To: Molina-Rios, Carmen
Cc: Holmes, Steven M.; Wayne Sumple
Subject: RE: RADE 2 - Timeline and Milestones

Carmen,

Based on discussions with Draper and CCAT I have compiled a status of supplier participation in RADE 2 Task 5. There are 13 active projects, 29 On Hold (potential & awaiting response) and 18 Inactive with the suppliers expressing no interest.

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Please review the attachment and provide recommendations for improvement.

Thanks,
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Ken Devins
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175 Addison Rd.
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Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, December 09, 2016 10:38 AM
To: Devins, Kenneth
Subject: RADE 2 - Timeline and Milestones

Hi Ken,

Now that you have had time to review the deliverables, metrics of Task 5 as well as talk with CCAT and Draper, please provide me with a timeline and milestones by Tuesday.

Thanks,

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From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	12/12/2016 09:16:15 AM
To:	Molina-Rios, Carmen
Subject:	RE: RADE 2 - Timeline and Milestones

Carmen,
10:30 is good.
Ken

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175 Addison Rd.
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Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Monday, December 12, 2016 6:46 AM
To: Devins, Kenneth
Subject: RE: RADE 2 - Timeline and Milestones

Morning Ken,

I'm have a conflict this morning. Is it okay for me to call you at 10:30 instead?

Thanks,
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Sent: Friday, December 9, 2016 4:41 PM
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From:	Molina-Rios, Carmen
Sent time:	12/12/2016 10:07:49 AM
To:	Devins, Kenneth <kdevins@belcan.com>
Subject:	RE: RADE 2 - Timeline and Milestones

Great, thank you. Barbara Fernandez will be joining us. We will talk in a few.

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Monday, December 12, 2016 9:16 AM
To: Molina-Rios, Carmen
Subject: RE: RADE 2 - Timeline and Milestones

Carmen,
10:30 is good.
Ken

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Sent: Friday, December 9, 2016 4:41 PM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Subject: RE: RADE 2 - Timeline and Milestones

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Cc: Holmes, Steven M.; Wayne Sumple
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From:	Molina-Rios, Carmen
Sent time:	12/09/2016 04:37:11 PM
To:	Devins, Kenneth <kdevins@belcan.com>
Cc:	Fernandez, Barbara
Subject:	RE: RADE 2 - Timeline and Milestones

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Cell Phone 203-584-8958

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From:	Molina-Rios, Carmen
Sent time:	12/12/2016 06:46:09 AM
To:	Devins, Kenneth <kdevins@belcan.com>
Subject:	RE: RADE 2 - Timeline and Milestones

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From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, December 9, 2016 4:41 PM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Subject: RE: RADE 2 - Timeline and Milestones

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Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, December 09, 2016 10:38 AM
To: Devins, Kenneth
Subject: RADE 2 - Timeline and Milestones

Hi Ken,

Now that you have had time to review the deliverables, metrics of Task 5 as well as talk with CCAT and Draper, please provide me with a timeline and milestones by Tuesday.

Thanks,

Carmen

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From: Molina-Rios, Carmen
Sent time: 07/31/2017 09:43:22 AM
To: Susan Palisano <spalisano@ccat.us>
Cc: dbalducci@aol.com; John Glidden <jglidden@ccat.us>; Lynn Raicik <lraicik@ccat.us>; Lisa Wilson <lwilson@ccat.us>
Subject: RE: RADE 2 Interim Report 10

Hi Sue,

Great! Yes, it does help. Thank you!

Have a good day.

Carmen

From: Susan Palisano [mailto:spalisano@ccat.us]
Sent: Friday, July 28, 2017 5:15 PM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: John Glidden <jglidden@ccat.us>; Lynn Raicik <lraicik@ccat.us>; Lisa Wilson <lwilson@ccat.us>; Don Balducci <dbalducci@ccat.us>
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Hi Carmen,

I had sent the table below (in our usual interim report format) to Lisa to include with the payment request. Wayne is out on vacation until Aug 8 so I have gone back and tried to assign the sub-task numbers. Does this help?

RADE Task 5 for the period 4/1/17-6/30/17

Task 5	**Manufacturing Innovation**
Progress/Activities:	**In support of establishment of the ITC, CCAT staff engaged in the following activity:** 5.2 Acquire and/or lease machinery/equipment 5.3 Installation of machinery and equipment • GOM ATOS Blue Light Scanning Technology: Prepared ITC space and managed machine delivery and installation • NSI X5000 CT X-Ray Scanning Technology: Prepared ITC space and managed machine delivery/installation 5.4 Perform outreach to Supply Chain • Conducted informal demonstrations to visitors touring AMC • Conducted formal demonstrations to 15 companies 5.5 Identify training needs 5.6 Deliver training • Participated in formal training provided by 3D Systems • Conducted internal training/practice on operation of hardware and software 5.7 Process improvement project implementation • Investigating four projects • Completed seven projects

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From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, July 28, 2017 5:03 PM
To: Susan Palisano
Cc: John Glidden; Lynn Raicik; Lisa Wilson
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Can you please have Wayne provide the data within these categories? I realize he provided some of the information but I want to make sure that the data is under each deliverable accurately. For example, formal demonstrations to 15 companies is this considered delivering training, outreach or project implementation.

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Sent: Thursday, July 20, 2017 2:56 PM
To: Ken Devins - Belcan (kdevins@belcan.com)
Cc: Lisa Wilson; Don Balducci
Subject: ITC Update

Hi Ken. I believe it's time for another ITC update.

Through June 2017

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3. How many hours have CCAT staff spent preparing for the NSI X5000 CT X-ray Scanner?
40

Activities included:
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Wayne M. Sumple

Manager, Advanced Manufacturing Center
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409 Silver Lane
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To: Molina-Rios, Carmen
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From: Molina-Rios, Carmen
Sent time: 12/27/2016 02:40:48 PM
To: Tom Maloney <tmaloney@ccat.us>; Devins, Kenneth <kdevins@belcan.com>; John Glidden <jglidden@ccat.us>; Fernandez, Barbara
Subject: RE: RADE 2 Task 5 Weekly Status

Hi Tom,

I have to justify why this vendor and/or manufacturer. Is there anything unique about this vendor as to why we should use this vendor?

Carmen

Sent from my Windows Phone

From: Tom Maloney
Sent: 12/23/2016 4:52 PM
To: Molina-Rios, Carmen; 'Devins, Kenneth'; John Glidden
Subject: RE: RADE 2 Task 5 Weekly Status

Hi Carmen-
There were three other equipment brands besides Nikon that we looked at:

1. General Electric
2. Microphotonics
3. Exact Metrology

I can get more information if needed.
Thank you,
Tom

Dr. Thomas M. Maloney
Chief Technology Officer
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street, Suite 106
East Hartford, CT 06108
Phone: 860.282.4936 (x-436)
E-Mail: tmaloney@ccat.us

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, December 23, 2016 3:00 PM
To: 'Devins, Kenneth'; John Glidden
Cc: Tom Maloney
Subject: RE: RADE 2 Task 5 Weekly Status

Hi Ken and Tom,

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If not, I may need to follow other process.

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, December 23, 2016 11:18 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'
Subject: RADE 2 Task 5 Weekly Status

Carmen,

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the machines after the contract expires on March 31st.

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The supplier list has been reviewed to select those suppliers that are most likely to have an interest in utilizing the ITC for a demonstration project.
These suppliers will receive the marketing brochure and be contacted thru phone, e-mail and face-to-face meetings to explain the benefits of utilizing the ITC for SLS technology demonstration projects.
They include:

1) GKN
2) Habco
3) Aero Gear
4) Birken
5) Reno Machine
6) Gros-ite (EDAC)
7) Whitcraft
8) Hubbell

The Sub-Tasks, Deliverables and Metrics and a status of supplier participation in Task 5 have been revised to include the above activities (See attachment).

As our next conference call is scheduled on a holiday, please let me know an alternative time to discuss progress.

Merry Christmas,
Ken

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Note: Attachment Withheld pursuant to CGS § 1-210(b)(1)

From: Tom Maloney <tmaloney@ccat.us>
Sent time: 12/28/2016 07:41:55 AM
To: Molina-Rios, Carmen; Devins, Kenneth <kdevins@belcan.com>; John Glidden <jglidden@ccat.us>; Fernandez, Barbara
Subject: RE: RADE 2 Task 5 Weekly Status
Attachments: Justification for ITC Non-Destructive Inspection Equipment (Draft 28-Dec-2016).docx

---

Hello Carmen-
I have summarized some notes pertaining to the different options for CT machine per the attached. I still have some TBDs to fill in but please let me know if this is the type of document that will suffice for justification.
Thank you!
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Note: Withheld pursuant to CGS § 1-210(b)(1)

2 - Pages

From: Tom Maloney <tmaloney@ccat.us>
Sent time: 12/23/2016 04:52:14 PM
To: Molina-Rios, Carmen; Devins, Kenneth <kdevins@belcan.com>; John Glidden <jglidden@ccat.us>
Subject: RE: RADE 2 Task 5 Weekly Status

Hi Carmen-
There were three other equipment brands besides Nikon that we looked at:

1. General Electric
2. Microphotonics
3. Exact Metrology

I can get more information if needed.
Thank you,
Tom

Dr. Thomas M. Maloney
Chief Technology Officer
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street, Suite 106
East Hartford, CT 06108
Phone: 860.282.4936 (x-436)
E-Mail: tmaloney@ccat.us

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, December 23, 2016 3:00 PM
To: 'Devins, Kenneth'; John Glidden
Cc: Tom Maloney
Subject: RE: RADE 2 Task 5 Weekly Status

Hi Ken and Tom,

Thank you for your work that you've been doing on providing me the information and budget. I need to know is this vendor the sole manufacturer of this equipment?
If not, I may need to follow other process.

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, December 23, 2016 11:18 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'
Subject: RADE 2 Task 5 Weekly Status

Carmen,

1) A timeline and budget for the proposed acquisition of an x-ray scanner for the ITC has been prepared by CCAT and is attached for your review.

Installation requirements were provided in a conference call with Nikon, the x-ray scanner manufacturer, on 12/20/16. The attached quote is for $449,999.00 which will be purchased by the state. All other costs (rent for space, rigging, electrical, CCAT staff) are covered under the current CCAT ITC budget thru March 31, 2017. DECD will need to decide what it wants to do with the machines after the contract expires on March 31st.

2) A draft marketing brochure has been prepared for use in soliciting additional suppliers participation in demonstration projects in the ITC.

Flanagan (EDAC) and New England Airfoil Products are the first suppliers to agree to participate in Task 5 and their projects are due to begin in early January with parts delivered to the ITC for scanning on the GOM ATOS equipment.

The supplier list has been reviewed to select those suppliers that are most likely to have an interest in utilizing the ITC for a demonstration project.
These suppliers will receive the marketing brochure and be contacted thru phone, e-mail and face-to-face meetings to explain the benefits of utilizing the ITC for SLS technology demonstration projects.
They include:

1) GKN
2) Habco
3) Aero Gear

4) Birken
5) Reno Machine
6) Gros-ite (EDAC)
7) Whitcraft
8) Hubbell

The Sub-Tasks, Deliverables and Metrics and a status of supplier participation in Task 5 have been revised to include the above activities (See attachment).

As our next conference call is scheduled on a holiday, please let me know an alternative time to discuss progress.

Merry Christmas,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
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From: Molina-Rios, Carmen
Sent time: 12/23/2016 11:52:07 AM
To: Devins, Kenneth <kdevins@belcan.com>; Wayne Sumple <wsumple@ccat.us>
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>; Fernandez, Barbara
Subject: RE: RADE 2 Task 5 Weekly Status
Attachments: ITC Marketing Flyer D.docx

Wayne and Ken,

Attached is the revised marketing flyer for you to use. Please note the yellow sections is the revised areas and specifically, the application must be an ITC application. Make the changes to the application so that it is reflective of the RADE ITC program. Wayne, please send me the application so that I can have it for the file.

Thanks,

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
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Ken

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Cell Phone 203-584-8958

Note: Withheld pursuant to CGS § 1-210(b)(1)

2 - Pages

From:	Molina-Rios, Carmen
Sent time:	12/23/2016 02:59:44 PM
To:	Devins, Kenneth <kdevins@belcan.com>; John Glidden <jglidden@ccat.us>
Cc:	Tom Maloney <tmaloney@ccat.us>
Subject:	RE: RADE 2 Task 5 Weekly Status

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Sent: Friday, December 23, 2016 11:18 AM
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From:	Molina-Rios, Carmen
Sent time:	01/04/2017 10:32:38 AM
To:	Devins, Kenneth <kdevins@belcan.com>
Cc:	Wayne Sumple <wsumple@ccat.us>; Fernandez, Barbara
Subject:	RE: RADE 2 Task 5 Weekly Status

Hi Ken,

Happy New Year! Yes, please remove the reference to the M3DI since it isn't being paid by DoD OEA and not owned by the state of Connecticut.

Thanks,

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Wednesday, January 04, 2017 10:29 AM
To: Molina-Rios, Carmen
Cc: Wayne Sumple
Subject: RADE 2 Task 5 Weekly Status

Carmen,
Wayne and I planned to remove the reference to the portable inspection tool since it is not owned by the State of Connecticut.
It was added originally in order to show the range of scanning devices available.

- The M3DI SLS-SE3 is an optical 3D measuring machine developed for efficient quality control in smaller production and manufacturing processes. It is a non-contact, portable inspection tool using white light technology. (Click Here)

Should we add this back or leave it out?
Ken

Belcan Engineering
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From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, December 23, 2016 11:52 AM
To: Devins, Kenneth; Wayne Sumple
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'; Fernandez, Barbara
Subject: RE: RADE 2 Task 5 Weekly Status

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Merry Christmas,
Ken

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Cell Phone 203-584-8958

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	05/05/2017 01:43:13 PM
To:	Molina-Rios, Carmen
Subject:	RE: RADE Task 5 April 2017 Status Report

Carmen,
Friday, 5/12 at 10:30 is good. I look forward to speaking with you.
Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, May 05, 2017 12:58 PM
To: Devins, Kenneth
Subject: RE: RADE Task 5 April 2017 Status Report

Hi Ken,

Next week Monday doesn't work. After looking at my calendar how about Friday, 5/12 at 10:30?

Sorry, I thought I had more availability.

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, May 05, 2017 12:02 PM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Subject: RE: RADE Task 5 April 2017 Status Report

Carmen,
Can we use our previous 10:30 AM time slot next Monday, 5/8 for the call?
If this time is good, I will call you on your office number 860-270-8234.
Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, May 05, 2017 10:43 AM
To: Devins, Kenneth
Subject: RE: RADE Task 5 April 2017 Status Report

Hi Ken,

Thank you for the report. As to your question in your previous email, the request is with the Dept. of Administrative Services and I am awaiting their approval. As soon as I have it I will let you know.

Please look at your calendar for next week and let's schedule a 15 minute call to discuss the status of your work with CCAT and Draper.

Thanks again,

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, May 05, 2017 10:16 AM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: RADE Task 5 April 2017 Status Report

Carmen,

As requested a summary of RADE Task 5 activity for April is listed below:

1) Thru April the GOM ATOS has accumulated 1150 hours on activities including informal demonstrations to visitors and formal demonstrations.
2) Mallory Industries is continuing their effort to get their customer (Woodward) to accept Blue Light as an approved inspection methodology for quality acceptance.
3) CCAT/ITC has been in contact with 19 suppliers resulting in 6 active projects and 8 potential projects. Five suppliers have determined that the Blue Light technology is not applicable to their products at this time. A summary of GOM ATOS supplier projects at the CCAT/ITC is attached.
4) Draper is not planning to solicit additional suppliers beyond the current 4. Work continues to complete 13 projects with Habco, Deburring House, GKN and Jonal, and there is one potential additional project at Deburring House. Specific applications are as follows:

Deburring House –	1 3D Scanning for Final Inspection
	2 3D Printing of Production Fixtures
	3 Measurement System Analysis of Critical Inspection Points
	4 Pending – Equipment Setup for 3D Printing/Scanning
Habco	1 3D Scanning of Customer Tool Profiles
	2 RFID Embedment for Cycle Time Reduction
	3 3D Printing Equipment Recommendation
GKN	1 3D Scanning for Inspection Time Reduction
	2 Measurement System Analysis of Critical Inspection Points
	3 Trimming Process Optimization
Jonal	1 Utilization of OGP Multi-sensor CMM for Automated Inspection
	2 Continuous Non-contact Measurement of Extruded Material
	3 3D Scanning for Mold Qualification
	4 Wireless Temperature Monitoring of Molds and Presses

5) At Belcan's request Draper provided suggestions to improve the execution of future Task 5 type grant activities:
   a) Provide budget flexibility to Draper based on their assessment of potential benefits, do not specify budget limits for each supplier or project.
   b) Initial outreach to suppliers should be from DECD/Belcan, not Draper, to allay fears of a hidden agenda from Draper.
6) Belcan participated in the final training session with CCAT and Capture 3D on the GOM ATOS on 4/20/17.
7) Belcan provided a letter from NSI to DECD verifying their adherence to 'sole source' criteria defined by DECD in support of the X5000 X-Ray Scanner acquisition purchase order (See Attachment).
8) Belcan with input from NSI and CCAT submitted a tentative schedule for delivery, installation and certification of the proposed NSI X5000 X-Ray scanner assuming a 5/15/17 purchase order approval (See Attachment).

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	05/05/2017 12:01:49 PM
To:	Molina-Rios, Carmen
Subject:	RE: RADE Task 5 April 2017 Status Report

Carmen,

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From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, May 05, 2017 10:43 AM
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Office Phone 860-683-5367
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From:	Molina-Rios, Carmen
Sent time:	05/05/2017 12:57:31 PM
To:	Devins, Kenneth <kdevins@belcan.com>
Subject:	RE: RADE Task 5 April 2017 Status Report

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inspection methodology for quality acceptance.

3) CCAT/ITC has been in contact with 19 suppliers resulting in 6 active projects and 8 potential projects. Five suppliers have determined that the Blue Light technology is not applicable to their products at this time. A summary of GOM ATOS supplier projects at the CCAT/ITC is attached.
4) Draper is not planning to solicit additional suppliers beyond the current 4. Work continues to complete 13 projects with Habco, Deburring House, GKN and Jonal, and there is one potential additional project at Deburring House. Specific applications are as follows:

Deburring House –	1 3D Scanning for Final Inspection
	2 3D Printing of Production Fixtures
	3 Measurement System Analysis of Critical Inspection Points
	4 Pending – Equipment Setup for 3D Printing/Scanning
Habco	1 3D Scanning of Customer Tool Profiles
	2 RFID Embedment for Cycle Time Reduction
	3 3D Printing Equipment Recommendation
GKN	1 3D Scanning for Inspection Time Reduction
	2 Measurement System Analysis of Critical Inspection Points
	3 Trimming Process Optimization
Jonal	1 Utilization of OGP Multi-sensor CMM for Automated Inspection
	2 Continuous Non-contact Measurement of Extruded Material
	3 3D Scanning for Mold Qualification
	4 Wireless Temperature Monitoring of Molds and Presses

5) At Belcan's request Draper provided suggestions to improve the execution of future Task 5 type grant activities:
   a) Provide budget flexibility to Draper based on their assessment of potential benefits, do not specify budget limits for each supplier or project.
   b) Initial outreach to suppliers should be from DECD/Belcan, not Draper, to allay fears of a hidden agenda from Draper.
6) Belcan participated in the final training session with CCAT and Capture 3D on the GOM ATOS on 4/20/17.
7) Belcan provided a letter from NSI to DECD verifying their adherence to 'sole source' criteria defined by DECD in support of the X5000 X-Ray Scanner acquisition purchase order (See Attachment).
8) Belcan with input from NSI and CCAT submitted a tentative schedule for delivery, installation and certification of the proposed NSI X5000 X-Ray scanner assuming a 5/15/17 purchase order approval (See Attachment).

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 02/10/2017 04:16:27 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: RE: RADE Task 5 January 2017 Progress Report

Carmen,

In response to your guidance I have revised the progress report.
Please advise if additional revisions are required.

CCAT accepted delivery of the GOM ATOS blue light scanner and worked with 3DSystems to install, de-bug and the calibrate equipment.

CCAT engineers and technicians completed the GOM ATOS training provided by 3DSystems.

3) CCAT and Belcan prepared and CCAT submitted a marketing brochure to selected suppliers for their consideration in concert with conference calls to discuss specific projects that could be performed demonstrating the GOM ATOS Blue Light Scanner capabilities (See Attachment).
4) With Belcan guidance and support six additional suppliers began participating at the ITC in January for a total of nine to date.
5) Two Draper projects and one CCAT/ITC project were completed in January (See Attachments).
6) Belcan introduced nine additional suppliers to the CCAT/ITC as potential candidates for Task 5 projects.. Further discussions with 3 of these suppliers have so far added one active project.
7) In a coordinated effort CCAT and Belcan prepared and delivered a sustainability proposal to DECD identifying a means of continuing the ITC beyond the completion of the RADE Task 5 contract (See Attachment).
8) Demonstrations and quotes were solicited by CCAT and Belcan from four manufacturers of Computed Tomography X-ray Scanning equipment to support the selection of an optimal solution for adding this technology and capability to the ITC. Belcan prepared and delivered the teams evaluation to DECD. While all four suppliers met the cost requirement, the North Star Imaging X5000 is preferred over the Nikon, GE and ProCon offerings as it can accommodate the largest part size (See Attachments).

Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Friday, February 10, 2017 2:24 PM
To: Devins, Kenneth
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'
Subject: RE: RADE Task 5 January 2017 Progress Report

Ken,

Thank you for the update on Task 5. However, this report should also include Belcan's effort in either driving, performing or supporting these activities.

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Friday, February 10, 2017 2:15 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; 'Vesce, Jennifer D Belcan Engineering Group, Inc'
Subject: RADE Task 5 January 2017 Progress Report

Carmen,

As requested a summary of RADE Task 5 activity for January is listed below:

CCAT accepted delivery of the GOM ATOS blue light scanner and worked with 3DSystems to install, de-bug and the calibrate equipment.

Completed GOM ATOS training provided by 3DSystems.

3) A Marketing brochure was prepared and submitted to selected suppliers for their consideration in concert with conference calls to discuss specific projects that could be performed demonstrating the GOM ATOS Blue Light Scanner capabilities (See Attachment).
4) Six additional suppliers began participating at the CCAT ITC in January for a total of nine to date.
5) Two Draper projects and one CCAT/ITC project were completed in January (See Attachments).
6) Nine additional suppliers were introduced to the CCAT/ITC thru Belcan contacts. Further discussions with 3 of these suppliers have so far added one active project.
7) A Sustainability proposal was prepared and delivered from CCAT to DECD identifying a means of continuing the ITC beyond the completion of the RADE Task 5 contract (See Attachment).
8) Demonstrations and quotes were solicited from four manufacturers of Computed Tomography X-ray Scanning equipment to support the selection of an optimal solution for adding this technology and capability to the ITC. Based on the teams evaluation the North Start Imaging X5000 is preferred over the Nikon, GE and ProCon offerings and accommodates the largest part size (See Attachments).

Please let me know if there are any questions.
Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Molina-Rios, Carmen
Sent time: 02/10/2017 02:23:46 PM
To: Devins, Kenneth <kdevins@belcan.com>
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Subject: RE: RADE Task 5 January 2017 Progress Report

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Please let me know if there are any questions.
Thanks,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Lisa Wilson <lwilson@ccat.us>
Sent time: 07/20/2017 03:46:57 PM
To: Molina-Rios, Carmen
Cc: Susan Palisano <spalisano@ccat.us>; John Glidden <jglidden@ccat.us>
Subject: RE: Requisition for Payment - June 2017

Hi Carmen,

Please see below.

RADE Task 5 for the period 4/1/17-6/30/17

Task 5	**Manufacturing Innovation**
Progress/Activities:	**In support of establishment of the ITC, CCAT staff engaged in the following activity:** GOM ATOS Blue Light Scanning Technology • Prepared ITC space and managed machine delivery and installment • Participated in formal training provided by 3D Systems • Conducted internal training/practice on operation of hardware and software • Conducted informal demonstrations to visitors touring AMC • Conducted formal demonstrations to 15 companies • Investigating four projects • Completed seven projects NSI X5000 CT X-Ray Scanning Technology • Prepared ITC space and managed machine delivery/installation

Thanks,
Lisa

Lisa Wilson
Accounting Manager
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street
East Hartford, CT 06108
Phone: 860-282-4988

From: Molina-Rios, Carmen [mailto:Carmen.MolinaRios@ct.gov]
Sent: Thursday, July 20, 2017 1:23 PM
To: Lisa Wilson
Cc: Susan Palisano; John Glidden
Subject: RE: Requisition for Payment - June 2017

Hi Lisa,

When do you think we will be receiving the report? I would like to have the payment processed today if possible.

Thanks,

Carmen

From: Molina-Rios, Carmen
Sent: Wednesday, July 19, 2017 3:33 PM
To: 'Lisa Wilson' <lwilson@ccat.us>
Cc: Susan Palisano <spalisano@ccat.us>; John Glidden <jglidden@ccat.us>

Subject: RE: Requisition for Payment - June 2017

Hi Lisa,

I'm having a great summer! Hope you are too!

Please forward to me the interim deliverable report so that I can process the payment request.

Thanks,

Carmen

From: Lisa Wilson [mailto:lwilson@ccat.us]
Sent: Tuesday, July 18, 2017 12:17 PM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: Susan Palisano <spalisano@ccat.us>; John Glidden <jglidden@ccat.us>
Subject: Requisition for Payment - June 2017

Hi Carmen,

I hope your summer is going well.

Please find attached our Requisition for Payment for June 2017 for OEA Task 5.

Thanks,
Lisa

Lisa Wilson
Accounting Manager
Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street
East Hartford, CT 06108
Phone: 860-282-4988

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From: Molina-Rios, Carmen
Sent time: 07/20/2017 03:55:48 PM
To: Lisa Wilson <lwilson@ccat.us>
Cc: Susan Palisano <spalisano@ccat.us>; John Glidden <jglidden@ccat.us>
Subject: RE: Requisition for Payment - June 2017

Lisa,

Thank you. Please have the ITC staff provide the numbers and description with the activities.

- Conducted **#** internal training/practice on operation of hardware and software
- Conducted **#** informal demonstrations to **#** visitors touring AMC
- Conducted **#** formal demonstrations to 15 companies
- Investigating four projects (what type of projects…)
- Completed seven projects

Thanks,

Carmen

From: Lisa Wilson [mailto:lwilson@ccat.us]
Sent: Thursday, July 20, 2017 3:47 PM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: Susan Palisano <spalisano@ccat.us>; John Glidden <jglidden@ccat.us>
Subject: RE: Requisition for Payment - June 2017

Hi Carmen**,**

Please see below.

RADE Task 5 for the period 4/1/17-6/30/17

Task 5	**Manufacturing Innovation**
Progress/Activities:	**In support of establishment of the ITC, CCAT staff engaged in the following activity:** GOM ATOS Blue Light Scanning Technology • Prepared ITC space and managed machine delivery and installment • Participated in formal training provided by 3D Systems • Conducted internal training/practice on operation of hardware and software • Conducted informal demonstrations to visitors touring AMC • Conducted formal demonstrations to 15 companies • Investigating four projects • Completed seven projects NSI X5000 CT X-Ray Scanning Technology • Prepared ITC space and managed machine delivery/installation

Thanks,
Lisa

Lisa Wilson
Accounting Manager

Connecticut Center for Advanced Technology, Inc.
222 Pitkin Street
East Hartford, CT 06108
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Subject: RE: Requisition for Payment - June 2017

Hi Lisa,

I'm having a great summer! Hope you are too!

Please forward to me the interim deliverable report so that I can process the payment request.

Thanks,

Carmen

From: Lisa Wilson [mailto:lwilson@ccat.us]
Sent: Tuesday, July 18, 2017 12:17 PM
To: Molina-Rios, Carmen <Carmen.MolinaRios@ct.gov>
Cc: Susan Palisano <spalisano@ccat.us>; John Glidden <jglidden@ccat.us>
Subject: Requisition for Payment - June 2017

Hi Carmen,

I hope your summer is going well.

Please find attached our Requisition for Payment for June 2017 for OEA Task 5.

Thanks,
Lisa

Lisa Wilson
Accounting Manager
Connecticut Center for Advanced Technology, Inc.
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From:	Molina-Rios, Carmen
Sent time:	12/21/2016 02:42:07 PM
To:	Devins, Kenneth <kdevins@belcan.com>
Cc:	Wayne Sumple <wsumple@ccat.us>; Forsyth, Jean M. <jforsyth@belcan.com>
Subject:	RE: Task 5 Supplier Interface

Ken,

As you know, I'm working on revising the marketing brochure. I will have it for you and Wayne tomorrow.

Thanks,

Carmen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Wednesday, December 21, 2016 2:07 PM
To: Molina-Rios, Carmen
Cc: Wayne Sumple; Forsyth, Jean M.
Subject: Task 5 Supplier Interface

Carmen,

Wayne and I met today to update the Marketing Brochure and review the supplier list to identify those suppliers that are most likely to have an interest in utilizing the ITC for a demonstration project.
Flanagan (EDAC) has already agreed to participate and the first project is due to begin in early January with a part delivered to the ITC for scanning on the GOM ATOS equipment.
Other suppliers will be contacted thru phone, e-mail and face-to-face meetings to explain the benefits of utilizing the ITC for SLS technology demonstration projects.
They include:

1) GKN
2) Habco
3) Aero Gear
4) Birken
5) Reno Machine
6) Gros-ite (EDAC)
7) Whitcraft
8) Hubbell
9) New England Airfoil Products (NEAP)

I will keep you informed on progress with these suppliers.

Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

From: Vesce, Jennifer D Belcan Engineering Group, Inc <Jennifer.Vesce@pw.utc.com>
Sent time: 12/16/2016 10:13:24 AM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M. <jforsyth@belcan.com>; Devins, Kenneth <kdevins@belcan.com>; Vesce, Marianne T. <mvesce@belcan.com>
Subject: REVISED INVOICE - Rade 2 Task 5 (Weeks ending 11/20 and 11/27/16)
Attachments: 0295_001.pdf

Hello Carmen.
The revised invoice is attached.

Best regards,
Jen

From: Devins, Kenneth [mailto:kdevins@belcan.com]
Sent: Thursday, December 15, 2016 12:09 PM
To: Molina-Rios, Carmen
Cc: Forsyth, Jean M.; Vesce, Jennifer D Belcan Engineering Group, Inc
Subject: [External] Progress Report - Rade 2 Task 5 (Weeks ending 11/20 and 11/27/16)

Carmen,

After the Purchase Order was signed work began on 11/14 with review of the Purchase Order, Statement of Work and Personal Services Agreement to clearly define the roles and responsibilities of the various team members (See attachment 1). For further clarification, the Belcan Team, including Jean Forsyth and Jennifer Vesce met with CCAT and Draper representatives for introductions and to establish next steps to proceed.

Travelled to CCAT to tour the facility and view the GOM ATOS Structured Light Scanner (SLS) installation. Wayne Sumple provided the tour and brought me up to date on the suppliers that had been surveyed back in January by Dan Lessard. I worked with Wayne to update the supplier list.

Directed by DECD to work with Tom Maloney of CCAT to investigate the potential installation of an x-ray scanner in the ITC to complement and expand the current SLS capability. Discussions on this topic are ongoing.

Concurrently Belcan and CCAT developed a Procedures and Guidelines document (See attachment 2). This document defines the process for interaction between DECD, Belcan, CCAT and suppliers, including the steps required for a supplier to submit a task and a marketing letter introducing the ITC to perspective suppliers.

The baseline Supplier Survey results are provided in Attachment 3 for reference. Work is process to update this list with more recent supplier activity provided by Draper and CCAT.

Regards,
Ken

Belcan Engineering
175 Addison Rd.
Windsor, Ct 06095
Office Phone 860-683-5367
Cell Phone 203-584-8958

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Belcan

INVOICE

INVOICE NO.

2182471

Belcan Engineering Group, LLC
10200 Anderson Way
Cincinnati OH 45242
(513) 891-0972

Invoice Date: 11/27/16

Week Ending 11/27/16

Customer P.O. No. ECDM1-0000013114

Belcan Job#: 3549030

Terms: Net 60 Days

CT DECD (Dept. of Economic & Comm. Dev)
Business & Econcomic Development
505 Hudson Street, 4th Floor
Hartford CT 06106-7106 USA

Prior Invoiced: $.00

Attn.: Michelle Richmond

P.O. Limit: $148,500.00

RADE 2- Task 5

STOCK COMMERCIAL

Technical Contact: Rios-Molina, Carmen

ITEM	TYPE	UNITS	RATE	AMOUNT
Technology Project Manager	Straight Time	35.50	75.00	2,662.50

PLEASE REMIT TO:
Belcan Engineering Group, LLC
Lockbox 771430
1430 Solutions Center
Chicago IL 60677-1004

PLEASE REMIT THIS AMOUNT-> $ 2,662.50
IN U.S. DOLLARS THANK YOU

ORIGINAL

Note: Attachment "Procedure-Guidelines ITC Rev G.docx" is withheld pursuant to CGS § 1-210(b)(1)

From: Fernandez, Barbara
Sent time: 03/21/2018 02:31:56 PM
To: Cabanillas, Jessica
Subject: State equipment
Attachments: State Equipment at ITC.pptx Procedures-Guidelines ITC Rev G.docx

Hi- Attached are pictures of 2 pieces of equipment that the state bought a couple of years ago. This was part of a program funded by both the federal government and CT. The equipment was bought thru DAS and followed their processes. The procedures and guidelines for the program are attached. The grant ends April 30th and we are considering transferring the equipment to CCAT for them to use in the new Composite Center . We are doing this because these two pieces of equipment work well with another piece of equipment the state bought specifically for composites. I am trying to find the correct procedures for this transfer- can you help me? Thank you!

Barbara Fernandez, Director
Business Development
Dept. of Economic and Community Dev.
450 Columbus Boulevard/South Tower,Suite 5
Hartford, CT 06103-1843
Tel: 860-500-2325
E-mail: barbara.fernandez@ct.gov
Please consider the environment before printing

See Stuff Made in CT https://nebusinessmedia.uberflip.com/i/883962-stuff-made-in-connecticut-fall-2017/0?.

Note: Withheld pursuant to CGS § 1-210(b)(1)

9 - Pages

Structured Light Scanner



X-Ray Scanner



From:	Molina-Rios, Carmen
Sent time:	02/01/2017 11:32:21 AM
To:	Kennedy, David R CIV OEA (US) <david.r.kennedy.civ@mail.mil>
Cc:	Fernandez, Barbara
Subject:	State of CT Interim Report - 7/31 to 12/131
Attachments:	OEA Phase II Interim Report 12316 cmr.doc OEA Phase II Interim Report 93016 cmr.doc July to Dec Interim Financials.xls

Hi David,

I hope all is well. Attached is the Interim Performance Report that I submitted via the OEA website yesterday. I thought I'd share it with you via email since I'm not sure all my documents attached.

Please let me know if you have any questions.

Thanks,

Carmen

Note: Withheld pursuant to CGS § 1-210(b)(5)(B) and CGS § 32-244(a)(13)

Interim Report Financials
7/31/16 - 12/31/16

Project Expenses	Budget		Interim Report		Cash on Hand	
	OEA Funds	Non OEA Funds	OEA Funds	Non OEA Funds	07/31/6 - 12/31/16	
Salary & Fringe	164024	[redacted]	51,628.11	[redacted]	Beginning	Ending
	114834		33,867.01		**3,132,653.97**	**2,382,087.83**
Total	**278858**		**85,495.12**			
Travel	3898		1,920			
Equipment	500000		133,480.50			
Supplies	0		0			
Other	0		0			
Subtotal Operations	0		0			
Contractural	3711548		1,798,824.63			
Total Direct Cost	4494304		2,019,720.25			
Indirect Cost	0		0			
Grand Total	**4494304**		**2,019,720.25**			

State of Connecticut
Department of Economic & Community Development
OEA Interim Performance Report

OEA Grant ID: HQ00051410049
Reporting Cycle: 10/01/2016 – 12/31/2016
Reporting Period: 8
Submitted by: CT Department of Economic & Community Development (DECD)
Activity: During this reporting period of the grant per the submitted project timeline, progress and activities toward task deliverables are highlighted below.

Progress/activities toward deliverables

Activities/Progress:	**Task 1: Economic Modeling Platform** **1.1 Deploy Phase II platform to RADE stakeholders** • Completed as per timeline • Rollover to 2015 contract data for all six states; 2014 data archived • Plenary session presented at November RADE Regional Summit **1.2 Refresh DoD contract data for the four original states, including additional industry surveys** • Completed **1.3 Add new contract data for New Hampshire and Vermont, including redesign/computing of region-specific models, GIS implementation, and testing "usefulness" to the New England region** • Completed **1.4 Add enhanced visualization features and reporting features** • Completed **1.5 Develop/launch Strategic Plan/Sustainability Plan for platform deployment** • Draft Strategic Plan/Sustainability Plan in progress
Activities/Progress:	**Task 2: Workforce Development** **2.1 Collect best practice models from partner states to include as a cluster resource through the Commons** • Finalized collection of state and regional workforce development resources for the toolkit that includes: links to resources, best practices, models, and actual applications • All toolkit will be uploaded to the Commons (under "Tools/Workforce Toolkit") in a format consistent with the Information Exchange and will be categorized • Toolkit resources will be keyword searchable and can be disaggregated by state **2.2 Provide further enhancements to the automated Job Match process** • Initiating BETA test of automated Job Match process • Integrating the application for mapping manufacturers to CT public transportation as an enhancement to the Job Match tool • Analyzing mapping feasibility for New England states **2.3 Recruit and manage company participation in the workforce planning pilot program** • Drafted protocol for meeting with defense employers • Identified 15 defense employers for pilot program **2.4 Contract with a third party provider to assist companies in the application of the strategic workforce planning too** • Now a consultant (under contract) task; dependent on prior task

Progress/Activities:	**Task 3: RADE Cluster** **3.1 Establish a RADE Leadership Team** • Completed: the RADE team is comprised of a representative from each New England states' OEA grant holder **3.2 Develop a RADE Cluster framework** • Compiled input from meetings with all state partners and stakeholder "surveys" • Finalizing analysis of how each state's deliverables will contribute to the development of the cluster initiative • Preparing preliminary recommendations for RADE cluster framework resulting from follow up meetings with state stakeholders - to be included in the Strategic Plan **3.3 Communicate the strategic framework for the cluster and its "usefulness" (value proposition) to the New England region** • Completed third round of one-on-one meetings with key stakeholders from all states which included discussion around feasibility of a New England cluster • Post-Summit stakeholder meeting facilitated by OEA conducted after the RADE Summit **3.4 Work with key state liaisons to bring all defense sectors together** • Continuing process **3.5 Design and execute stakeholder presentations on the functionality of the economic modeling platform and update on the RADE initiative in partnership with the New England Council** • Continuing effort as per timeline
Progress/Activities:	**Task 4: Virtual Industry Commons** **4.1 Develop deployment strategy to introduce the Commons to the RADE community** • Introduced the Commons at the RADE Summit **4.2 Full deployment** • On target as per revised timeline – see above **4.3 Provide Commons support and enhancements** • On target as per revised timeline; new user dashboard and B2B features in progress • Continue to provide hosting and management of Commons • Continue to solicit feedback from stakeholders on value-added features and functionality via state visits/interviews
Progress/Activities:	**Task 5: Manufacturing Innovation** **5.1 Hire Technical Coordinator** • Belcan Engineering Group LLC. is under contract and performing the technical coordinator function. • Belcan meets and coordinates with CCAT and Draper to ensure the program deliverables are met. • DECD and Belcan have weekly conference call updates • Belcan is working with CCAT on the x-ray scanning machine specification and justification. **5.2 Acquire and/or lease machinery/equipment** • GOM ATOS Blue light purchased and delivered • Investigated CT X-ray Scanner Technology **5.3 Installation of machinery and equipment**

	• CCAT worked with 3DSystems to install, de-bug and calibrate equipment **5.4 Perform Outreach to supply chain** • CCAT, Belcan Engineering Group and Draper all conducted outreach to supply chain companies. **5.5 Identify training needs** • CCAT technicians received training from 3DSystems **5.6 Deliver Training** • If/when appropriate **5.7 Process Improvement project implementation** • Validated demonstration test methodology and procedures • Engaged 11 companies in participation • 5 demonstration projects are started • 2 projects are completed **5.8 Analyze/report on manufacturing innovation processes and technologies** • Draper to lead this effort.
Progress/Activities	**Task 6: Outreach** **6.1 Establish a defense cluster ad hoc conference planning committee** • Completed as per timeline **6.2 Create timeline and action plan for a regional conference** • Completed and updated throughout the quarter as required **6.3 Plan and execute RADE Summit & Exposition** • Completed as per timeline • Draper supported the RADE New England Defense Summit on November 9, 2016. Draper's Vice President of National Security & Space Programs participated in one of the panel discussions. **6.4 Develop and implement a strategic regional RADE awareness campaign** • Discussions taking place under Task 3, Cluster Initiative
Process/Activities:	**Task 7: Project Evaluation** **7.1 Develop RFP and hire third party evaluator** • The Center for Regional Economic Competitiveness (CREC) is under contract **7.2 Develop project logic model and evaluation plan** • CREC has begun reviewing and evaluating all tasks under grant. **7.3 Meet with program partners and stakeholders** • CREC is interviewing partners and stakeholders involved in grant. **7.4 Review progress toward stated goals on a quarterly basis and report on a yearly basis** To be completed

State of Connecticut
Department of Economic & Community Development
OEA Interim Performance Report

OEA Grant ID: HQ00051410049
Reporting Cycle: 07/01/2016 – 09/30/2016
Reporting Period: 7
Submitted by: CT Department of Economic & Community Development (DECD)
Activity: During this reporting period of the grant per the submitted project timeline, progress and activities toward task deliverables are highlighted below.

Progress/activities toward deliverables

Activities/Progress:	**Task 1: Economic Modeling Platform** **1.1 Deploy Phase II platform to RADE stakeholders** • The Phase II platform with updated data and enhanced visualizations has been previewed by all New England state stakeholders • 2015 platform will be demonstrated at New England RADE Summit **1.2 Refresh DoD contract data for the four original states, including additional industry surveys** • Completed **1.3 Add new contract data for New Hampshire and Vermont, including redesign/computing of region-specific models, GIS implementation, and testing "usefulness" to the New England region** • 2015 Contract data for New Hampshire and Vermont added; 2014 database archived for historical/reporting purposes • Facilitated Go-to-Meetings to demonstrate the Economic Modeling Platform with stakeholders in Vermont and New Hampshire. **1.4 Add enhanced visualization features and reporting features** • Enhanced visualization completed • New Reporting features under development **1.5 Develop/launch Strategic Plan/Sustainability Plan for platform deployment** • Initial outline(s) for Strategic Plan completed; final plan will contain deployment and sustainability recommendations for EMP
Activities/Progress:	**Task 2: Workforce Development** **2.1 Collect best practice models from partner states to include as a cluster resource through the Commons** • In the process of evaluating state and regional workforce development tools for inclusion on the Commons in an informational format or as a link to be maintained by partner state **2.2 Provide further enhancements to the automated Job Match process** • Finalizing work with CCAT IT for automated job match process • Completing work on application for mapping manufacturers to CT public transportation as an enhancement to the Job Match tool, to assist employers with workforce challenges by linking otherwise untapped talent to their company **2.3 Recruit and manage company participation in the workforce planning pilot program**

	• Re-planned due to delay in staffing and completion of tool **2.4 Contract with a third party provider to assist companies in the application of the strategic workforce planning too** • Now a consultant (under contract) task; dependent on prior task
Progress/Activities:	**Task 3: RADE Cluster** **3.1 Establish a RADE Leadership Team** • Completed: the RADE team is comprised of a representative from each New England states' OEA grant holder **3.2 Develop a RADE Cluster framework** • Review of all New England state OEA projects (summaries attached) completed • Currently analyzing how each state's deliverables will contribute to developing the cluster initiative **3.3 Communicate the strategic framework for the cluster and its "usefulness" (value proposition) to the New England region** • Completed first round of one-on-one meetings with key stakeholders from all states which included collecting responses to a set of broad survey questions (regional defense sector "needs analysis") • In the process of analyzing and documenting perceived value proposition via stakeholder responses in order to inform this deliverable **3.4 Work with key state liaisons to bring all defense sectors together** • Met with DECD office representatives in New Hampshire, Vermont and Maine around the identification of defense-related sectors • Attended the *2016 Annual Maine Manufacturing Summit* focused on energy and workforce development, providing an opportunity to explore businesses involved in and out of the defense sector • Met with Molly Magee, President of *SENEDIA,* on RI defense industry; continuing discussions to identify specific industry sectors • Attended the *2016 RI Manufacturing Annual Meeting* • Attended the *NH Aerospace & Defense Conference* **3.5 Design and execute stakeholder presentations on the functionality of the economic modeling platform and update on the RADE initiative in partnership with the New England Council** • Completed a draft stakeholder presentation using a CT based OEM that can be used as a template for discussions on the functionality of the RADE Economic Modeling Platform • Met with Joseph Donovan Co-Chair, *Defense Working Group, New England Council*; continuing discussions to identify specific industry sectors from Council viewpoint

Progress/Activities:	**Task 4: Virtual Industry Commons** **4.1 Develop deployment strategy to introduce the Commons to the RADE community** • Discussions in progress with marketing consultant and state partners on deployment strategies **4.2 Full deployment** • Re-planned due to rescheduling of RADE Summit; on target as per revised timeline **4.3 Provide Commons support and enhancements** • In progress: re-planned due to rescheduling of RADE Summit; on target as per revised timeline • Continue to provide hosting and management of Commons • Member dashboard development in progress • B2B functionality in progress • Continue to solicit feedback from stakeholders on value-added features and functionality via state visits/interviews • Continued to pursue online defense news opportunities • Conducted conference calls with daily defense newsfeed providers re: subscription opportunities.
Progress/Activities:	**Task 5: Manufacturing Innovation** **5.1 Hire Technical Coordinator** • Belcan Engineering Group LLC. Waiver for Competitive Solicitation from Office of Policy Management approved DECD to enter into a Personal Services Agreement • Scopes of Services, deliverables, milestones and timeline have been approved. • DECD is in contract phase with Belcan. **5.2 Acquire and/or lease machinery/equipment** • Draper provided a revised evaluation/recommendation on Capture 3D equipment. • Provided follow up on equipment specifications recommended by Draper, P&W, DECD • CCAT provided feedback to DECD on equipment selection, size of cabinet/model/cube selection • Worked with Capture 3D on equipment requirements • Contacted Walther Trowel to review equipment and technical specifications based on media, material and time • Draper and CONNSTEP began initial partner on projects. **5.3 Installation of machinery and equipment** (To be finalized) • Reviewed technical specifications and equipment requirements for the GOM ATOS to develop test plan • Developed test plan for parts to be measured utilizing the GOM ATOS • Made necessary layout changes to accommodate new equipment recommendation **5.4 Perform Outreach to supply chain** • Consolidated DECD survey results provided to CCAT to prepare for “customer” follow up when equipment is installed • CCAT Developed matrix for test plan based on size of components from DECD survey

	• Draper contacted and followed up with 22 suppliers to gain insight on their interest to engage in a project. • Draper emailed second group of suppliers to see if there was any interest in learning more about the program. • Initial company visits were made by Draper to provide support on projects related to the F-135 program. • Letters of intent and Non-disclosure agreements were entered into by Draper and two companies. **5.5 Identify training needs** • To be identified **5.6 Deliver Training** • If/when appropriate **5.7 Process Improvement project implementation** • To be completed **5.8 Analyze/report on manufacturing innovation processes and technologies** • Review of Draper results from metrology study
Progress/Activities	**Task 6: Outreach** **6.1 Establish a defense cluster ad hoc conference planning committee** • Completed as per SOW **6.2 Create timeline and action plan for a regional conference** • Completed as per SOW **6.3 Plan and execute RADE Summit & Exposition (Spring 2016)** • Rescheduled for Fall 2016 **6.4 Develop and implement a strategic regional RADE awareness campaign** • Re-planned as per the rescheduled conference • **Additional note on Outreach activities:** CCAT presented RADE project at the Association of Defense Communities 2016 Summit in Washington DC for the "Building New Capacities for Defense Contractors" panel
Process/Activities:	**Task 7: Project Evaluation** **7.1 Develop RFP and hire third party evaluator** • Scope of services was created; • Waiver from Competitive Bid was approved by the Office of Policy & Management to engage the Center for Regional Economic Competitiveness (CREC) • Contracted drafted with scope of services, deliverables, timeline, and milestones. **7.2 Develop project logic model and evaluation plan** To be completed **7.3 Meet with program partners and stakeholders** To be completed **7.4 Review progress toward stated goals on a quarterly basis and report on a yearly basis** To be completed

Task 1 **Activities/Progress:**	**Economic Modeling Platform** **Refresh DoD contract data for the four original states, including additional industry surveys** • Additional survey data and 2014 refresh completed • 2015 EOY contract data refresh completed; 2014 database archived for historical/reporting purposes **Add new contract data for New Hampshire and Vermont, including redesign/computing of region-specific models, GIS implementation, and testing "usefulness" to the New England region** • 2015 contract data for New Hampshire and Vermont added; 2014 database archived for historical/reporting purposes • Facilitated Go-to-Meetings to demonstrate the Economic Modeling Platform with stakeholders in Vermont and New Hampshire **Add enhanced visualization features and reporting features** • Enhanced visualization completed • New reporting features under development **Develop/launch Strategic Plan/Sustainability Plan for platform deployment** • Final strategic plan will contain deployment and sustainability recommendations for EMP; see below (Task 3) for updates **Deploy Phase II platform to RADE stakeholders** • The Phase II platform with updated data and enhanced visualizations has been previewed by all New England state stakeholders • 2015 platform will be demonstrated at New England RADE Summit
Task 2 **Activities/Progress:**	**Workforce Development** **Collect best practice models from partner states to include as a cluster resource through the Commons** • Finalizing the evaluation of state and regional workforce development tools for inclusion on the Commons in an informational format or as a link to be maintained by partner state **Provide further enhancements to the automated Job Match process** • Finalizing work with CCAT IT for automated job match process • Finalizing work on application for mapping manufacturers to CT public transportation as an enhancement to the Job Match tool, to assist employers with workforce challenges by linking otherwise untapped talent to their company

	Recruit and manage company participation in the workforce planning pilot program • Evaluating additional information on strategic workforce planning collected through Chmura Economics and Analytics particularly around JobsEQ • Conducting preliminary meetings with manufacturers "tweaking" strategic planning tool components **Contract with a third party provider to assist companies in the application of the strategic workforce planning tool** • Now a consultant (under contract) task; dependent on prior task
Task 3 **Progress/Activities:**	**RADE Cluster** **Establish a RADE Leadership Team** • Completed: the RADE team is comprised of a representative from each New England states' OEA grant holder • Started preliminary plan to bring RADE leadership Team together next quarter to address cluster initiative objectives and potential next steps **Develop a RADE Cluster framework** • Completing analysis of how each state's deliverables will contribute to the development of the cluster initiative **Communicate the strategic framework for the cluster and its "usefulness" (value proposition) to the New England region** • Completed second round of one-on-one meetings with key stakeholders from all states which included discussion around feasibility of a New England cluster • Conducted numerous meetings with state stakeholders in preparation of the 2016 NE RADE Summit • Post-Summit stakeholder meeting will be held for roundtable discussion **Work with key state liaisons to bring all defense sectors together** • Scheduling meetings with ACM – Al Samuel and Chris DiPentima • Scheduling meetings with NE states PTAC departments • Scheduling meeting for New England Council to present most current Economic Modeling Platform data • Follow-up on/review Northeast Regional Council (PTACs) • Review Washington Military Alliance organizational model as suggested by SENEDIA • Attended SENEDIA Defense Innovation Days **Design and execute stakeholder presentations on the functionality of the economic modeling platform and update on the RADE initiative in partnership with the New England Council** • Completed an extensive presentation of the economic modeling

	platform during this time period for the RADE NE Defense Summit, this presentation will be used with the New England Council
Task 4 **Progress/Activities:**	**Virtual Industry Commons** **Develop deployment strategy to introduce the Commons to the RADE community** • Collected lists of State stakeholders and VIP's who would be interested in discussions about the RADE Commons as a communication tool for the cluster initiative **Full deployment** • on target as per revised timeline **Provide Commons support and enhancements** • on target as per revised timeline • Continue to provide hosting and management of Commons • Continue to solicit feedback from stakeholders on value-added features and functionality via state visits/interviews • Continued to pursue online defense news opportunities
Task 5 **Progress/Activities:**	**Manufacturing Innovation** **In support of establishment of the ITC, CCAT staff:** • Made changes to facility preparations based on change of scope/equipment selected by Draper i.e. power and ceiling modifications, equipment was change from Hexagon to GOM Atos • Conducted another round of outreach to initial DECD project survey participants to re-engage and continue interest in program • Tested "Trubiquity" process for ITAR compliance • Set up CCAT Structured Light scanner tested • Reviewed test method procedure • Equipment ordered by DECD expected delivery 6-10 weeks
Task 6 **Process/Activities:**	**Outreach** **Establish a defense cluster ad hoc conference planning committee** • Completed **Create timeline and action plan for a regional conference** • Completed and updated throughout the quarter as required **Plan and execute RADE Summit & Exposition (Spring 2016)** • Set date for November 9 at the Connecticut Convention Center • Determined agenda, selected and scheduled speakers, managed venue logistics, coordinated presentations, prepared program materials, distributed invitations, and tracked registrations **Develop and implement a strategic regional RADE awareness campaign** • Re-planned as per the rescheduled conference

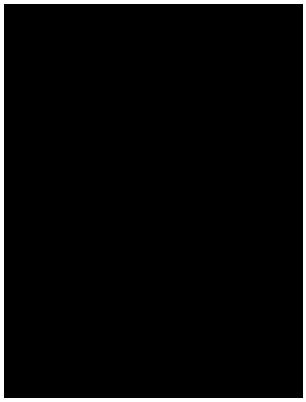
Task 7	Project Evaluation
Process/Activities:	**Develop RFP and hire third party evaluator** **Develop project logic model and evaluation plan** **Meet with program partners and stakeholders** **Review progress toward stated goals on a quarterly basis and report on a yearly basis**

Part III. BUDGET

(As of September 30, 2016)

DECD actual quarterly expenditures
CCAT actual quarterly expenditures
CCAT actual quarterly expenses, Task 5
DECD actual matching funds
Total Quarterly project expenditures

CCAT total cumulative project expenditures
CCAT total cumulative project expenditures, Task 5



From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	12/21/2016 02:24:55 PM
To:	Molina-Rios, Carmen
Cc:	Forsyth, Jean M. <jforsyth@belcan.com>; Wayne Sumple <wsumple@ccat.us>
Subject:	Task 5 Scope

Carmen,

I would like to discuss the scope of Task 5 going forward.
The original survey covered three technologies including Structured Light Scanning (GOM ATOS), Non-Destructive Testing (the proposed X-ray scanner) and Surface Treatment (Walther Trowal).

The ITC is currently limited to the GOM ATOS equipment and there is a potential to add an X-ray scanner.

The Surface Treatment equipment was deemed impractical to reside at the ITC due to size and environmental issues. An alternative to ITC providing Surface Treatment technology assistance to Connecticut suppliers is available thru a partnership with the Walther Trowal company. They have agreed to run demonstration projects at their facility outside of Connecticut with their equipment that is not owned by the ITC.

Does Task 5 include Surface Treatment applications and Walther Trowal?

Thanks,
Ken

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Office Phone 860-683-5367
Cell Phone 203-584-8958

From:	Devins, Kenneth <kdevins@belcan.com>
Sent time:	12/21/2016 02:07:26 PM
To:	Molina-Rios, Carmen
Cc:	Wayne Sumple <wsumple@ccat.us>; Forsyth, Jean M. <jforsyth@belcan.com>
Subject:	Task 5 Supplier Interface

Carmen,

Wayne and I met today to update the Marketing Brochure and review the supplier list to identify those suppliers that are most likely to have an interest in utilizing the ITC for a demonstration project.
Flanagan (EDAC) has already agreed to participate and the first project is due to begin in early January with a part delivered to the ITC for scanning on the GOM ATOS equipment.
Other suppliers will be contacted thru phone, e-mail and face-to-face meetings to explain the benefits of utilizing the ITC for SLS technology demonstration projects.
They include:

1) GKN
2) Habco
3) Aero Gear
4) Birken
5) Reno Machine
6) Gros-ite (EDAC)
7) Whitcraft
8) Hubbell
9) New England Airfoil Products (NEAP)

I will keep you informed on progress with these suppliers.

Ken

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Note: Attachment withheld pursuant to CGS § 1-210(b)(1)

From: Devins, Kenneth <kdevins@belcan.com>
Sent time: 01/27/2017 09:23:35 AM
To: Molina-Rios, Carmen
Cc: Tom Maloney <tmaloney@ccat.us>
Subject: X-ray scanner justification
Attachments: Justification for ITC Non-Destructive Inspection Equipment (Draft 1-26-17).docx

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Carmen,

Here is the conference call in number. This is also in the meeting notice.

Dial in [redacted] passcode [redacted]

I have also attached the latest justification summary for our discussion.

Ken

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Note: Withheld pursuant to CGS § 1-210(b)(1)

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