



Calhoun: The NPS Institutional Archive

Theses and Dissertations

Thesis and Dissertation Collection

2016-12

Analysis of other transaction agreements to
acquire innovative renewable energy
solutions for the Department of the Navy

Tobin, Ryan

Monterey, California: Naval Postgraduate School



Calhoun is a project of the Dudley Knox Library at NPS, furthering the precepts and goals of open government and government transparency. All information contained herein has been approved for release by the NPS Public Affairs Officer.

Dudley Knox Library / Naval Postgraduate School
411 Dyer Road / 1 University Circle
Monterey, California USA 93943

<http://www.nps.edu/library>



**NAVAL
POSTGRADUATE
SCHOOL**

MONTEREY, CALIFORNIA

MBA PROFESSIONAL REPORT

**ANALYSIS OF OTHER
TRANSACTION AGREEMENTS TO
ACQUIRE INNOVATIVE
RENEWABLE ENERGY SOLUTIONS
FOR THE DEPARTMENT OF THE
NAVY**

December 2016

**By: Ryan Tobin
Josh Millner
Casey Gillette**

**Advisors: Daniel Nussbaum
E. Cory Yoder**

Approved for public release. Distribution is unlimited.

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE December 2016	3. REPORT TYPE AND DATES COVERED MBA professional report		
4. TITLE AND SUBTITLE ANALYSIS OF OTHER TRANSACTION AGREEMENTS TO ACQUIRE INNOVATIVE RENEWABLE ENERGY SOLUTIONS FOR THE DEPARTMENT OF THE NAVY			5. FUNDING NUMBERS	
6. AUTHOR(S) Ryan Tobin, Josh Millner, and Casey Gillette				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) Defense Innovation Unit-Experimental (DIUx)			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government. IRB number NPS.2016-0119-DD-N.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (maximum 200 words) The purpose of this project is to use a case-study approach to analyze the effectiveness and efficiency of <i>other transaction</i> (OT) agreements and the OT Consortium Model to acquire innovative renewable energy solutions. OTs are typically used for prototypes; however, the fiscal year (FY) 2016 National Defense Authorization Act (NDAA) expands the use of OT authority per statute 10 U.S.C. § 2371. Our research includes interviews with Defense Innovative Unit-Experimental personnel to highlight their experience with innovative businesses previously reluctant to pursue federal contracts. Additionally, our research leverages best practices from the Army Contracting Command-New Jersey, as well as industry partners, such as the Consortium for Energy, Environment, and Demilitarization and the National Security Technology Accelerator consortium, to compile recommendations for the Department of the Navy's acquisition strategy for renewable energy. The results of this case study include recommendations on the best use of OT agreements to drive innovation into the procurement of renewable energy solutions in accordance with Better Buying Power 3.0 initiatives.				
14. SUBJECT TERMS other transaction authority, renewable energy acquisition strategy			15. NUMBER OF PAGES 95	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU	

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

**ANALYSIS OF OTHER TRANSACTION AGREEMENTS TO ACQUIRE
INNOVATIVE RENEWABLE ENERGY SOLUTIONS FOR THE
DEPARTMENT OF THE NAVY**

Ryan Tobin, Lieutenant Commander, United States Navy
Josh Millner, Lieutenant Commander, United States Navy
Casey Gillette, Lieutenant, United States Navy

Submitted in partial fulfillment of the requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

from the

**NAVAL POSTGRADUATE SCHOOL
December 2016**

Approved by: Daniel Nussbaum

E. Cory Yoder

Don Summers
Academic Associate
Graduate School of Business and Public Policy

Rene Rendon
Academic Associate
Graduate School of Business and Public Policy

THIS PAGE INTENTIONALLY LEFT BLANK

ANALYSIS OF OTHER TRANSACTION AGREEMENTS TO ACQUIRE INNOVATIVE RENEWABLE ENERGY SOLUTIONS FOR THE DEPARTMENT OF THE NAVY

ABSTRACT

The purpose of this project is to use a case-study approach to analyze the effectiveness and efficiency of *other transaction* (OT) agreements and the OT Consortium Model to acquire innovative renewable energy solutions. OTs are typically used for prototypes; however, the fiscal year (FY) 2016 National Defense Authorization Act (NDAA) expands the use of OT authority per statute 10 U.S.C. § 2371. Our research includes interviews with Defense Innovative Unit–Experimental personnel to highlight their experience with innovative businesses previously reluctant to pursue federal contracts. Additionally, our research leverages best practices from the Army Contracting Command–New Jersey, as well as industry partners, such as the Consortium for Energy, Environment, and Demilitarization and the National Security Technology Accelerator consortium, to compile recommendations for the Department of the Navy’s acquisition strategy for renewable energy. The results of this case study include recommendations on the best use of OT agreements to drive innovation into the procurement of renewable energy solutions in accordance with Better Buying Power 3.0 initiatives.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	RESEARCH QUESTIONS.....	2
B.	METHODOLOGY.....	3
C.	INSTITUTIONAL REVIEW BOARD PROTOCOL.....	3
D.	WHAT TO EXPECT.....	4
II.	BACKGROUND.....	5
A.	TIMELINE.....	5
B.	LITERATURE REVIEW.....	7
1.	Better Buying Power 3.0.....	7
2.	10 U.S. Code § 2371.....	9
3.	Federal Acquisition Regulation.....	11
4.	SECNAV Strategy for Renewable Energy.....	12
5.	Small Business Innovation and Research.....	13
6.	Defense Innovation Unit Experimental Fact Sheet.....	14
III.	WHAT IS AN OT AND HOW CAN IT BE APPLIED?.....	15
A.	OTHER TRANSACTIONS DEFINED AND DESCRIBED.....	15
1.	Other Transactions Defined.....	15
2.	Other Transactions Described.....	17
B.	ARMY CONTRACTING COMMAND–NEW JERSEY ESTABLISHED PRACTICES.....	18
C.	EXISTING CONSORTIA.....	21
3.	Consortium for Energy, Environment, and Demilitarization.....	21
4.	National Security Technology Accelerator.....	22
D.	DEFENSE INNOVATION UNIT EXPERIMENTAL APPLICATION.....	23
IV.	BARRIERS TO GOVERNMENT–INDUSTRY COLLABORATION.....	29
A.	STRINGENT ACQUISITION RULES AND REGULATIONS.....	29
B.	STRICT AUDIT, MANAGEMENT, AND INSPECTION PROTOCOLS.....	31
C.	ACQUISITION WORKFORCE AS A BARRIER.....	33
1.	Acquisition Workforce Shortage.....	33
2.	Acquisition Workforce Training Deficiencies.....	35
3.	Risk–Averse Culture.....	37

D.	PROTECTING INTELLECTUAL PROPERTY RIGHTS	38
E.	OTHER BARRIERS TO INDUSTRY PARTICIPATION	39
V.	HOW CAN AN OT AGREEMENT ADDRESS THESE ISSUES?	41
A.	THE USE OF OT AGREEMENTS TO ADDRESS GOVERNMENT PRECLUSIONS TO INNOVATION	41
1.	Elimination/Reduction of Stringent Acquisition Rules and Regulations	41
2.	The Use of Consortiums to Interact between Government and Industry	42
B.	THE USE OF OT AGREEMENTS TO ADDRESS INDUSTRY PRECLUSIONS TO GOVERNMENT PARTICIPATION	46
1.	Negotiability and Flexibility of OT Agreements	46
2.	Increased Efficiency and Collaboration.....	49
VI.	SUMMARY	51
A.	CONCLUSIONS	51
B.	FINDINGS AND RECOMMENDATIONS	53
C.	THE WAY AHEAD.....	53
	APPENDIX. COMMERCIAL SOLUTIONS OPENING (CSO).....	57
	LIST OF REFERENCES	69
	INITIAL DISTRIBUTION LIST	75

LIST OF FIGURES

Figure 1.	Agencies with Permanent or Temporary Other Transaction Authority and Year Granted. Source: GAO (2016).....	6
Figure 2.	Other Transaction Actions and Dollars Report. Source: General Services Administration (GSA; n.d.).....	19
Figure 3.	OTA Notional Operating Procedures. Source: ACC-NJ (2015).....	21
Figure 4.	NSTXL Approach. Source: NSTXL (2016).....	23
Figure 5.	Competitive Award Process Map. Source: ACC-NJ (2016).	26
Figure 6.	The DOD’s Top 10 Cost Drivers. Source: GAO (1996).	30
Figure 7.	DOD Audit Overlaps with SOX. Source: Husband & Nicholls (2015).....	32
Figure 8.	Acquisition Workforce Levels. Source: Schwartz, Francis, & O’Connor (2016).....	34
Figure 9.	DOD Acquisition Obligations Comparison. Source: Schwartz, Francis, & O’Connor (2016).....	34
Figure 10.	Non-DAWIA Acquisition Roles. Source: GAO (2013).	36
Figure 11.	Overlapping Acquisition Roles. Source: GAO (2013).	36
Figure 12.	DAU Enrollment from 2008–2010. Source: GAO (2013).....	37
Figure 13.	Cooperative Enterprise Model. Source: CEED (n.d.).....	44
Figure 14.	NSTXL Process for Improving Government-Industry Interactions. Source: NSTXL, personal communication, October 4, 2016.	45
Figure 15.	Supporting Innovators and the Tech Community. Source: NSTXL, personal communication, October 4, 2016.	46

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

Table 1.	Agencies Authorized to Use Other Transaction Agreements and Their Statutory Authorities. Source: GAO (2016).....	16
Table 2.	Findings and Recommendations.....	53

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

ARDEC	U.S. Army Armament Research, Development and Engineering Center
AT&L	Acquisition, Technology, and Logistics
BAA	Broad Agency Announcement
BBP	Better Buying Power
CAS	Cost Accounting Standards
CEED	Consortium for Energy, Environment, and Demilitarization
CICA	Competition in Contracting Act
CLC	Continuous Learning Course
CMO	Contracts Management Office
CO	Contracting Officer
CRS	Congressional Research Service
DARPA	Defense Advanced Research Projects Agency
DAU	Defense Acquisition University
DFARS	Defense Federal Acquisition Regulation Supplement
DHS	Department of Homeland Security
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of Interior
DON	Department of the Navy
DOT	Department of Transportation
DPAP	Defense Procurement Acquisition Policy
DTRA	Defense Threat Reduction Agency
EEO	Equal Employment Opportunity
FAA	Federal Aviation Administration
FAR	Federal Acquisition Regulation
FARA	Federal Acquisition Reform Act
FASA	Federal Acquisition Streamlining Act
FBO	Federal Business Opportunities
FCS	Future Combat System

GAAP	Generally Accepted Accounting Principles
GC	General Counsel
HASC	House Armed Services Committee
HHS	Department of Health and Human Services
IDCC	Integrated Dual-Use Commercial Companies
IG	Inspector General
IP	Intellectual Property
IPT	Integrated Product Team
JTRS	Joint Tactical Radio System
LRIP	Low Rate Initial Production
MDA	Missile Defense Agency
NASA	National Aeronautics and Space Administration
NDAA	National Defense Authorization Act
NIH	National Institutes of Health
NSS	National Security Strategy
NSTXL	National Security Technology Accelerator
OASN	Office of the Assistant Secretary of the Navy
OT	Other Transactions
OUSD	Office of the Under Secretary of Defense
R&D	Research and Development
R&E	Research and Engineering
RDECOM	U.S. Army Research, Development and Engineering Command
RD&D	Research, Development, and Demonstration
RFP	Request for Proposal
RFQ	Request for Quote
S&T	Science and Technology
SASC	Senate Armed Services Committee
SBIR	Small Business Innovation Research
SME	Subject Matter Expert
SPE	Senior Procurement Executive
STTR	Small Business Technology Transfer Program
TIA	Technology Investment Agreement

TSA	Transportation Security Administration
U.S.C.	United States Code
USD	Under Secretary of Defense
USN	United States Navy

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

We offer our sincere thanks to Ms. Lauren Schmidt, DIUx Pathways director; Mr. Tim Greeff, NSTXL founder; and Mr. Patrick Hamilton, ACC-NJ representative, for their time and cooperation. Their professional insight was critical to our research.

Additionally, we thank Professors Dan Nussbaum and Cory Yoder for their patience and guidance throughout this process.

Finally, we thank our families for enduring this effort with us. It was only possible through their support, encouragement and sacrifice.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

“Defense acquisition reform” is a catchphrase among congressional leaders, acquisition officials, and senior military officers. Acquisition reform is not a new phenomenon. In fact, a history of defense acquisition reform efforts, from former Secretary of Defense Melvin Laird’s Blue Ribbon Defense Panel in 1969 to current Secretary of Defense Ash Carter’s Defense Innovation Advisory Board in 2016, suggests a continuous effort to ensure that U.S. armed forces operate with best-in-class technology. For decades, the Department of Defense (DOD) led the innovative charge, but cumbersome federal acquisition regulations and territorial bureaucratic debates have stifled the DOD’s competitive advantage. The harsh reality is that the DOD lags behind private industry with respect to innovative solutions and commercial best practices (Pomerleau, 2016).

In an effort to jumpstart a culture of innovation, Secretary Carter established a Defense Innovation Unit Experimental (DIUx) office in Mountain View, CA, the heart of Silicon Valley. According to Carter,

I created DIUx last year because one of my core goals as secretary of defense has been to build, and in some cases rebuild, bridges between our national security endeavor at the Pentagon, and America’s wonderfully innovative and open technology community. (Bertuca, 2016, p. 1)

DIUx has authority to award research and development agreements via Army Contracting Command–New Jersey (ACC-NJ) using other transactions (OTs) as the principal means of business arrangement. The DOD *OT Guide* defines OTs as “acquisition instruments generally not subject to federal laws and regulations governing procurement contracts” (Under Secretary of Defense for Acquisition, Technology, and Logistics [USD(AT&L)], 2002, p. 8). OT authority is granted by 10 U.S.C. § 2371 for prototype projects related to DOD weapons systems. Specifically, section 815 of the National Defense Authorization Act (NDAA) for fiscal year 2016 expands OT authority to propel innovative research and to increase the DOD’s access to commercial firms through streamlined acquisition processes. Moreover, the DOD *OT Guide* acknowledges

that “this [OT] acquisition authority, when used selectively, is a vital tool that will help the Department achieve the civil and military integration that is critical to reducing the cost of defense weapon systems” (USD[AT&L], 2002, p. 8).

Renewable energy initiatives have also gained prominence throughout the DOD in response to the following mandates and goals: Executive Order 13514 and greenhouse gas reduction; 10 U.S.C. § 2911 energy performance goals and master plan for the Department of Defense; the Energy Policy Act and 2005 renewable energy targets; and Executive Order 13423 and renewable energy consumption goals. Accordingly, Secretary of the Navy Ray Mabus created the 1 Gigawatt Task Force initiative in accordance with his five energy goals for the Department of the Navy (DON) addressed in the *Strategy for Renewable Energy* (DON, 2012). Other DON-chartered renewable energy task forces include the Great Green Fleet and Task Force Energy, sponsored by the Office of the Assistant Secretary of the Navy (OASN) Energy and the Chief of Naval Operations (OPNAV) Code N45, respectively.

Our research highlights the potential effects of expanded OT authority towards DON renewable energy procurement strategies. Research collection methods included interviews with representatives from DIUx, ACC-NJ, DON energy directorates, and private energy consortiums to compile DOD and industry best practices. Application of this research is important because the DOD, an institutional leader of innovation and one of the largest consumers of energy in the world, should operate with the highest state of technology and energy readiness.

A. RESEARCH QUESTIONS

Our primary research question is whether the use of OT agreements will improve the effectiveness and efficiency of the DON’s acquisition of innovative renewable energy solutions. To that end, we examined the existing literature—including published reports from the Government Accountability Office (GAO), Congressional Research Service (CRS), and DOD, as well as interviews conducted with subject matter representatives from government and industry—to study the benefits and risks associated with expanded

OT authority as compared to traditional, Federal Acquisition Regulation (FAR)–based contracts. Our supporting questions included the following:

1. What is an OT agreement, and how can it be applied?
2. What precludes industry from participating in the DON’s renewable energy marketplace?
3. How can an OT agreement address industry and government preclusions?
4. How can the DON apply lessons learned to incorporate OT agreements into a new acquisition strategy for its energy task forces?

The supporting questions also served to frame the problems plaguing the DOD’s current acquisition process and to show how the use of OT agreements taps into an innovative marketplace with non-traditional contractors.

B. METHODOLOGY

OT authority is not a new concept, but it is relatively unknown and unused among DOD contracting authorities. As a result, our research was restricted to a select few DOD commands and public–private OT consortiums to determine notional standard operating procedures and best practices. Independent research of recent GAO, CRS, and DOD instructions was also incorporated to highlight the potential application of increased OT usage. Formal interviews with DOD command representatives from DIUx, ACC-NJ, OASN Energy, OASN Renewable Energy Program Office (REPO), and OPNAV N45, as well as industry representatives from CEED and NSTXL, provided substantive insight into the advantages and disadvantages of OT agreements from both government and industry perspectives. Our analytical focus on effectiveness and efficiency—wherein *effectiveness* refers to the product quality and *efficiency* refers to procurement cost and lead time—was the basis for the comparison of OTs against traditional, FAR-based contracts.

C. INSTITUTIONAL REVIEW BOARD PROTOCOL

An Institutional Review Board (IRB) determined that our research activity did not involve human subject research. Specifically, the IRB chair stated that all questions posed by the investigators are “about what” rather than “about whom.” The pre-collected data

contained personally identifiable information (e.g., names, phone numbers, email addresses), but this information was publicly available on the Internet (and no special access was required to view it), so it was also admissible without human subject research.

D. WHAT TO EXPECT

Chapter II addresses the background of OT authority, including a timeline of applicable federal agencies' congressional OT authorization dates, and a brief review of relevant literature governing OT authority, federal acquisition regulations, and acquisition reform initiatives.

Chapter III addresses the root definition and application of OTs across government and industry. Specifically, best practices from ACC-NJ, FCEED, and NSTXL are highlighted as a future acquisition model for the DON's renewable energy initiatives.

Chapter IV focuses on current government and industry preclusions from participating in the innovation marketplace based upon testimony from interviews and published articles. Chapter V presents the argument for how the use of OTs addresses current issues, and, finally, Chapter VI offers recommendations for incorporating OT agreements into a revised DON acquisition strategy for innovative renewable energy solutions.

II. BACKGROUND

There are several traditional tools available to enable the DOD to procure goods and services and provide financial assistance. These include contracts, grants, cooperative agreements, and cooperative research and development (R&D) agreements. Contracts are the most common tool for the procurement of goods and services. They are subject to regulations set forth in the FAR, including cost accounting standards, cost principles, and procedures (Government Accountability Office [GAO], 2016, p. 3). Financial assistance is provided by either grants or cooperative agreements, and is used when the “purpose is to transfer a thing of value to a recipient to carry out a public purpose of support or stimulation authorized by law” (GAO, 2016, p. 3). Cooperative Research and Development Agreements (CRADAs) “are written agreements between a federal laboratory and a nonfederal partner and were authorized in the 1980s” (GAO, 2016, p. 4). Their primary use is to enable federal and nonfederal entities to work together on a project focused on transferring federally developed technologies to nonfederal entities capable of benefiting from and further expanding the technology (GAO, 2016, p. 3). The GAO (2016) also stated that “in addition to these authorities, Congress established other transaction authority for certain agencies through separate legislation” (p. 3).

A. TIMELINE

Currently, six federal departments and five agencies within the departments have OT authority. In 1958, The National Aeronautics and Space Administration (NASA) was the first agency to be granted OT authority. Since then, the authority to use OTs has been granted to five other federal departments, including the Departments of Defense (DOD), Energy (DOE), Health and Human Services (HHS), Homeland Security (DHS) and Transportation (DOT). Authority has also been granted to several agencies within the departments, including the Federal Aviation Administration (FAA), Transportation Security Administration (TSA), Domestic Nuclear Detection Officer (DNDO), Advanced Research Projects Agency–Energy (ARPA-E), and certain programs within the National Institutes of Health (NIH). In 2011, the NIH was the latest agency to receive the authority; however, in 2015, the authority was

expanded for the DOD through the fiscal year (FY) 2016 NDAA. Figure 1 provides a timeline for when each department and agency received authority.

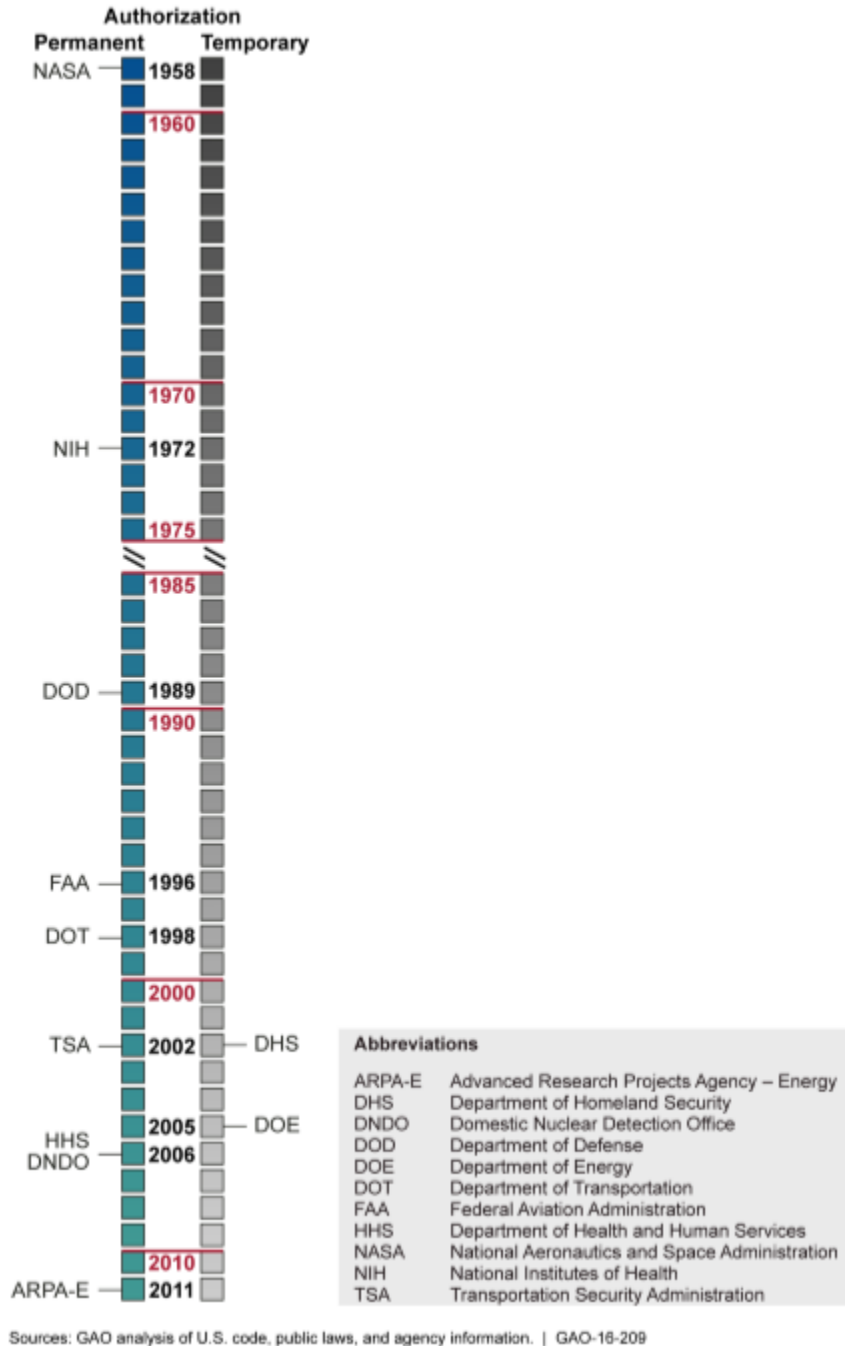


Figure 1. Agencies with Permanent or Temporary Other Transaction Authority and Year Granted. Source: GAO (2016).

B. LITERATURE REVIEW

There has been a significant amount of literature written about increasing buying power, streamlining acquisition and contracting processes and procedures, and increasing the pool of contractors and industries willing to do business with the federal government. This literature review focuses on recent policy that pertains to improving acquisition processes and procedures while still following federal acquisition guidelines. The literature review conducted for this project includes the following: Better Buying Power 3.0, Title 10 U.S.C., the Federal Acquisition Regulation, the Secretary of the Navy (SECNAV) Strategy for Renewable Energy, Small Business Innovation Research (SBIR), and the DIUx Factsheet.

1. Better Buying Power 3.0

On April 9, 2015, the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (OUSD[AT&L]) released a memorandum and implementation guidance for Better Buying Power (BBP) 3.0. This implementation guidance outlines the intent to improve and evolve the initiatives outlined in BBP 1.0 and BBP 2.0

particularly core initiatives to include affordability caps, should cost targets, competition, effective contractual incentives, and professionalism in the acquisition work force. Some earlier initiatives that may not be included here are still in the process of being implemented, while others are either complete or well underway and not specifically emphasized in BBP 3.0. (OUSD[AT&L], 2015, Attachment 2).

The Better Buying Power initiative began in FY2010 with Better Buying Power 1.0 (OUSD[AT&L], 2015). The intent of BBP was to ensure that the acquisition community identifies and uses best practices and to improve the way the DOD conducts business. The BBP initiative expanded in FY2013 with BBP 2.0. BBP 2.0 focused on continuous process improvements, including setting affordability caps, increasing competition, eliminating unproductive processes and bureaucracy, incentivizing productivity and innovation in both industry and government, and improving professionalism in the acquisition workforce. BBP 3.0's primary focus is to "Achieve Dominant Capabilities through Technical Excellence" (OUSD[AT&L], 2015). While

BBP 3.0 has eight separate areas of emphasis and application, we only focus on the initiatives that relate to using other transactions to acquire advanced technology.

Of the eight core capabilities identified in the BBP 3.0 implementation guidance (OUSD[AT&L], 2015), there are two that specifically apply to OT authority and to expanding the DOD's access to non-traditional DOD contractors in order to maximize access to new and innovative technologies. The first of these two capabilities is to "Incentivize Productivity in Industry and Government" (OUSD[AT&L], 2015, p. 7), and the action that is most relevant to OT authority is to "remove barriers to commercial technology utilization (OUSD [AT&L], 2015, p. 9)." This guidance is in place to ensure more timely innovation and fielding of new technology. The OUSD(AT&L) recognizes that the DOD's timeframe for developing products in the areas of electronics, information technology, and related technologies is much longer than it is for some commercial entities and understands that the DOD needs to maximize the use of available commercial technologies and products whenever possible. The following quotes, retrieved from the BBP 3.0 implementation guidance, capture the underlying initiatives to improve buying power:

The Deputy Assistant Secretary of Defense for Manufacturing and Industrial Base Policy (DASD(MIBP)), with Director DPAP [Defense Acquisition Procurement Policy] and ASD(R&E) [Assistant Secretary of Defense for Research and Engineering], will develop a handbook of methods and best practices by July 2015 that inform DOD manager on how to engage more effectively with commercial technology companies using existing authorities. The handbook will emphasize Other Transaction Authority (OTA), Cooperative Research and Development Agreements (CRADAs), Federal Acquisition Regulation (FAR) Part 12, public-private partnership, use of 10 USC 2373, and applicable FAR clauses to enable DOD to more quickly access companies that provide commercial technologies of interest and incentivize them to do business with DOD.

ASD(R&E) will evaluate the potential benefits of greater participation in innovation focused consortium arrangements by September 2015. This will include one or more independent organizations that have direct access to companies that are able to provide emerging commercial innovative solutions to address DOD technology needs.

DAU will establish a Community of Practice for rapidly acquiring Commercial Off-the-Shelf products and Commercial Services by October 2015.

DASD(MIBP), with DPAP, will evaluate the potential for legislative or policy changes that would provide greater opportunity for access to commercial technology and report results by October 2015. This action will include an assessment of intellectual property, liability implications, and other commercial industry concerns. (OUSD[AT&L], 2015, p. 10)

The next core capability in BBP 3.0 is to “Incentivize Innovation in Industry and Government” (OUSD[AT&L], 2015, p. 12), including the action to “increase the return on and access to small business research and development” (OUSD[AT&L], 2015, p. 15). This section identifies the importance of the use of small businesses and looks to increase access to and use of small businesses. It cites the successes achieved through the Small Business Innovation Research (SBIR) program, the Rapid Innovation Fund (RIF), and the Defense Advanced Research Projects Agency’s (DARPA’s) small-business outreach programs. The report also explains that the DOD must ensure that it removes burdens that will limit or deter small businesses with innovative technology from doing business with the DOD. It promotes access to technological innovation by directing engagement with non-traditional suppliers as follows:

Director Office of Small Business Programs (OSBP), in collaboration with DASD Manufacturing and Industrial Base Policy (MIBP), Assistant Secretary of Defense (ASD) Acquisition (A), ASD Research and Engineering (R&E), and Director DARPA, will develop recommendations to increase access to innovation within the national security environment through engaging non-traditional suppliers, entrepreneurs, and inventors. Recommendations will be provided to USD(AT&L) on increased use of avenues such as Other Transaction Authorities (OTA). ...This effort will be coordinated closely with tasks associated with improving access to commercial technologies. (OUSD[AT&L], 2015, p. 16)

2. 10 U.S. Code § 2371

Title 10 section 2371 of the United States Code (U.S.C.) states that “the Secretary of Defense and the Secretary of each department may enter into transactions other than contracts, cooperative agreements, and grants to carry out basic, applied, and research projects” (10 U.S.C. §2371). There are limitations in this authority to ensure that OT

authority is not being used to duplicate research. Additionally, the OT should only be used when a standard contract, grant, or cooperative agreement is not feasible or appropriate. Section 815 of the NDAA (2015) amends chapter 139 of Title 10 and inserts a new section, 10 U.S.C. § 2371b, titled “Authority of the Department of Defense to carry out certain prototyped projects.” This amendment expands the use of OT Authority and provides guidance on the appropriate application of the OT. The following quote captured from 10 U.S.C. § 2371b summarizes the additional authority granted to the DOD by Congress:

Director of the Defense Advanced Research Projects Agency, the Secretary of a military department, or any other official designated by the Secretary of Defense may ... carry out prototype projects that are directly relevant to enhancing the mission effectiveness of military personnel and the supporting platforms, systems, components, or materials proposed to be acquired or developed by the Department of Defense, or to improvement of platforms, systems, components, or materials in use by the armed forces. (10 U.S.C. §2371b [a] [1])

10 USC § 2371b provides guidance on approval levels for the use of other transactions. If an OT is expected to be awarded in excess of \$250,000,000 (including all options), it requires the approval of the USD(AT&L) and notification to the congressional defense committee at least 30 days prior to awarding the transaction. Awards of less than \$250,000,000 but more than \$50,000,000 (including all options) must be approved in writing by the senior procurement executive level for the applicable agency. Awards with a total value below \$50,000,000 are subject to approval at the contracting officer authority. In addition to the threshold levels, any award with payments in excess of \$5,000,000 must have a clause that provides the comptroller general the ability to examine the records of any entity that participates in the agreement.

Determination of the appropriate use of the authority is also identified in 10 U.S.C. § 2371b. In order to participate in this type of transaction, one of the following four criteria must be met:

- There is at least one nontraditional defense contractor participating to a significant extent in the prototype project.

- All significant participants in the transaction other than the Federal Government are small businesses or nontraditional defense contractors.
- At least one third of the total cost of the prototype project is to be paid out of funds provided by parties to the transaction other than the Federal Government.

The senior procurement executive for the agency determines in writing that exceptional circumstances justify the use of a transaction that provides for innovative business arrangements or structures that would not be feasible or appropriate under a contract, or would provide an opportunity to expand the defense supply base in a manner that would not be practical or feasible under a contract. (10 U.S.C. § 2371b)

The new amendment embedded in the FY2016 NDAA provides incentives for nontraditional defense contractors. A nontraditional defense contractor is defined as

an entity that is not currently performing and has not performed, for at least the one-year period preceding the solicitation of sources by the Department of Defense for the procurement or transaction, any contract or subcontract for the Department of Defense that is subject to full coverage under the cost accounting standards. (10 U.S.C. §2302[9])

This authority encourages nontraditional defense contractor participation in DOD projects by changing the requirements for a follow-on agreement. A follow-on contract or agreement may be made in a sole source environment, provided that the initial agreement was awarded in a competitive environment. Additionally, the participant in the agreement must have successfully completed the prototype prior to the follow-on award.

3. Federal Acquisition Regulation

The Federal Acquisition Regulations System was established to codify and publish policies and procedures for all government agencies including the Department of Defense. These policies and procedures are documented in the Federal Acquisition Regulation (FAR), which governs the use of acquisitions with appropriated funds.

The goal of the Federal Acquisition System is to “satisfy the customer in terms of cost, quality, and timeliness of the delivered product or service” (FAR 1.102). It also seeks to take full advantage of the use of commercial products and services, track contractor performance, and promote competition, while minimizing administrative costs.

The vision is to balance the competing interests in terms of cost, performance, and public policy to obtain the best value for the customer, which results in a system that works better at a lower cost (FAR, 2016). The FAR applies to all acquisitions, as explained in FAR Part 2, except where expressly excluded. The FAR's definition of acquisition is as follows:

The acquiring by contract with appropriated funds of supplies or services (including construction) by and for the use of the Federal Government through purchase or lease whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated. Acquisition begins at the point when agency needs are established and includes the description of requirements to satisfy agency needs, solicitation and selection of sources, award of contracts, contract financing, contract performance, contract administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract. (FAR 2.101)

FAR Part 2 does not include a definition for *other transaction*. There is no statutory definition of an OT; however, it is defined by what it is not. An OT is not a contract, grant, or cooperative agreement and, therefore, is not subject to the regulations in the FAR (Halchin, 2011).

4. SECNAV Strategy for Renewable Energy

In October 2009, Secretary of the Navy Mabus set five energy goals for the DON (Paige, 2009). The first goal was to increase the use of alternative energy DON-wide, which included the requirement that 50% of all DON energy consumption would come from alternative sources by 2020. The second goal was to increase alternative energy ashore and required the DON to produce at least 50% of shore-based requirements from alternative sources and that 50% of DON installations would be net-zero. The third goal was to reduce non-tactical petroleum use, which mandated the DON to reduce petroleum usage in commercial vehicles by 50% by 2015. The fourth goal was to sail the "Great Green Fleet," meaning that the Green Strike Group would be in local operations by 2012 and deployed by 2016. His final goal was to implement energy-efficient acquisition, which meant that energy factors would be part of the evaluation criteria when awarding contracts for systems and buildings (DON, 2012).

In addition to the SECNAV's goals for producing alternative energy, the president, in his 2012 State of the Union Address, announced that the Navy would purchase "enough renewable energy to power a quarter million homes" (Obama, 2012). This mandate resulted in the creation of the Gigawatt Task Force (1GW TF). The purpose of this task force, led by the Office of the Assistant Secretary of the Navy for Energy, Installations, & Environment (ASN EI&E), is to oversee the implementation of this directive and to overcome challenges and look for opportunities to implement the strategy of purchasing renewable energy. The president and SECNAV's goals combined to become the overall strategy for the DON: to increase the amount of renewable energy procured, while simultaneously reducing energy consumption to achieve the goal of generating 50% of the DON's renewable energy.

The DOD is the largest energy consumer in the United States, although only 2% of total used, accounts for 80% of the federal government's consumption (DON, 2012). The Navy accounts for 28% of that usage with its need to operate entities from commissaries to carrier strike groups. The Navy has been involved in efforts to reduce energy by focusing on efficiency since the 1980s; however, it is only recently that the emphasis has shifted to actively looking for renewable energy. In the DON *Strategy for Renewable Energy*, the renewable energy environment is addressed, as well as all renewable technologies and trends (DON, 2012). The DON 1GW TF has considered established technologies like solar devices (photovoltaic, thermal, and concentrated), wind, geothermal, biogenic (biomass, biofuels, waste-to-energy), seawater air conditioning, and technologies that are still in development like marine power (wave, tidal, ocean thermal). When considering any of these technologies as part of its energy strategy, the DON assesses factors such as impact on operations, availability of the resources, capital costs, operation and maintenance requirements, and environmental restrictions, among many others (DON, 2012).

5. Small Business Innovation and Research

The SBIR program was established to increase the role of innovative small businesses in federally funded projects. The specific purposes of the program are to:

(1) stimulate technological innovation; (2) use small business to meet Federal R/R&D needs; (3) foster and encourage participation by socially and economically disadvantaged small businesses (SDBs), and by women-owned small businesses (WOSBs), in technological innovation; and (4) increase private sector commercialization of innovations derived from Federal R/R&D, thereby increasing competition, productivity and economic growth. (Small Business Administration [SBA] Office of Investment and Innovation, 2014, p. 14)

SBIR contracts are awarded in a three-phase process. The first phase is awarded to a small business to determine the scientific merit of a new technology and implementation feasibility of that technology in a commercial setting. If the technology is determined to have merit, the second phase is awarded to the contractor whose first phase prototype was approved. During phase II, the contractor with an approved prototype will “further develop work from Phase I that meets particular program needs and exhibits potential for commercial application” (SBA Office of Investment and Innovation, 2014 p. 4). The third phase is awarded to the small business to enable commercialization of the technology. The third phase is awarded “where commercial applications of SBIR-funded R/R&D are funded by non-Federal sources of capital; or where products, services or further research intended for use by the Federal Government are funded by follow-on non-SBIR Federal Funding Agreements” (SBA Office of Investment and Innovation, 2014 p. 4).

6. Defense Innovation Unit Experimental Fact Sheet

Defense Innovation Unit Experimental (DIUx) is a DOD initiative to increase communication and collaboration with high-tech companies. Technical innovators have clustered in Silicon Valley, Boston, and Austin. As part of the DOD’s Innovation Initiative, DIUx opened its first pilot office in August 2015 in Silicon Valley. A second office was opened in Boston in May 2016. “The DIUx mission is to strengthen existing relationships and build new ones, scout for breakthrough and emerging technologies, and serve as a local presence for the DOD” (DOD, 2015). The DIUx team is made up of active duty military, civilians, and key reserve personnel. The team’s purpose is to “communicate our most challenging national security problems to innovators and entrepreneurs, serve as matchmakers between ideas and opportunities, and will help these organizations navigate through the DOD to where they can make the greatest difference” (DOD, 2015).

III. WHAT IS AN OT AND HOW CAN IT BE APPLIED?

In this chapter, we provide a definition of an OT agreement, describe the different types of OTs, present a brief history of the authority, and provide an explanation of how the DOD can use the OT authority. Additionally, we discuss Army Contracting Command's (ACC's) established practice of using the OT authority. We also examine existing OT agreement consortiums: the Consortium for Energy, Environment, and Demilitarization (CEED) and the National Security Technology Accelerator (NSTXL). Finally, we explore how the DOD is leveraging DIUx and using the OT authority to drive innovation into defense acquisition.

A. OTHER TRANSACTIONS DEFINED AND DESCRIBED

The following sections include a definition of OTs, how and when OTs are used, and a description of the important changes that have been implemented to strengthen OT authority.

1. Other Transactions Defined

An OT is an alternative tool that a federal entity can use for research and development purposes (Halchin, 2011). Halchin (2011) described an OT in the following way: "There is no statutory or regulatory definition of 'other transaction,' though in practice it is defined in the negative: an OT is not a contract, grant, or cooperative agreement" (p. 3).

The use of and authority to use OTs is not new; they have been used for several years. NASA was the first federal entity to receive the authority to use OTs through the National Aeronautics and Space Act of 1958. In the decades since the original authority was granted to NASA, Congress has expanded the eligibility to use OTs to the 11 federal agencies identified in Chapter II. (GAO, 2016)

The statutory authority of OTs varies among the 11 federal agencies granted the authority. Table 1 provides a summary of the different statutory authorities that are applicable for each agency.

Table 1. Agencies Authorized to Use Other Transaction Agreements and Their Statutory Authorities. Source: GAO (2016).

Agency	Other transaction authority as currently enacted ^a	Public Law providing initial authorization
Department of Defense (DOD) <i>For research, development, and demonstration activities</i>	10 U.S.C. § 2371	Pub. L. No. 101-189, § 251 (1989)
<i>For prototype activities</i>	10 U.S.C. § 2371 note	Pub L. No. 103-160, § 845 (1993)
Department of Energy (DOE)	42 U.S.C. § 7256	Pub. L. No. 109-58, § 1007 (2005)
Advanced Research Projects Agency-Energy (ARPA-E)	42 U.S.C. § 16538	Pub. L. No. 111-358, § 904 (2011)
Department of Health and Human Services (HHS)	42 U.S.C. § 247d-7e	Pub. L. No. 109-417, § 401 (2006)
National Institutes of Health (NIH) <i>For National Heart, Blood Vessel, Lung, and Blood Diseases and Blood Resources Program</i>	42 U.S.C. § 285b-3	Pub. L. No. 92-423, § 3 (1972)
<i>For Common Fund</i>		
<i>For certain demonstration projects</i>	Consolidated Appropriations Act, 2015, Pub. L. No. 113-235, div. G, title II, § 213, 128 Stat. 2487	Pub. L. No. 108-199, div. E, title II, § 221, 118 Stat. 256 (2004)
<i>For Cures Acceleration Network</i>	42 U.S.C. § 284n	Pub. L. No. 109-482, § 105 (2007)
	42 U.S.C. § 287a	Pub L. No. 111-148, § 10409 (2010)
Department of Homeland Security (DHS)	6 U.S.C. § 391	Pub. L. No. 107-296, § 831 (2002)
Domestic Nuclear Detection Office (DNDO)	6 U.S.C. § 596	Pub. L. No. 109-347, § 501 (2006)
Transportation Security Administration (TSA)	49 U.S.C. § 114(m)	Pub. L. No. 107-71, § 101 (2002)
Department of Transportation (DOT)	49 U.S.C. § 5312	Pub. L. No. 105-178, § 3015 (1998)
Federal Aviation Administration (FAA)	49 U.S.C. § 106(l)	Pub L. No. 104-264, § 226 (1996)
National Aeronautics and Space Administration (NASA)	51 U.S.C. § 20113(e)	Pub. L. No. 85-568, § 203(c) (1958)

Sources: GAO analysis of U.S. code and public laws. | GAO-16-209

^aAs of September 30, 2015.

As illustrated in Table 1, the statutory authority for the DOD is 10 U.S.C. § 2371. Congress has given the DOD authority to award two different types of OT agreements: R&D activities and prototype activities (GAO, 2016). With regard to the authority for R&D activities, 10 U.S.C. § 2371 states the following:

(a) ADDITIONAL FORMS OF TRANSACTIONS AUTHORIZED- The Secretary of Defense and the Secretary of each military department may enter into transactions (other than contracts, cooperative agreements, and grants) under the authority of this subsection in carrying out basic, applied and advanced research projects. The authority under this subsection is in addition to the authority provided in section 2358 of this title to use

contracts, cooperative agreements, and grants in carrying out such projects. (10 U.S.C. §2371)

The DOD first received the authorization to use OT authority in 1989. Initially, DARPA was the only entity in the DOD that was granted the authority. However, since the initial authority was granted, Congress has extended the approval to use the authority several times. In 1991, the use of OTs was expanded to include all of the DOD. Additionally, the NDAA for FY1994 allowed DARPA to use OT agreements for weapons or weapon systems prototype projects. This was followed by Congress extending the preceding authority, the use of OT agreements for weapons or weapon systems prototype projects, to all of the DOD in 1996 (GAO, 2016). With regard to the authority for prototype activities, 10 U.S.C. § 2371 states,

(a) AUTHORITY.—(1) Subject to paragraph (2), the Director of the Defense Advanced Research Projects Agency, the Secretary of a military department, or any other official designated by the Secretary of Defense may, under the authority of section 2371 of title 10, United States Code, carry out prototype projects that are directly relevant to weapons or weapon systems proposed to be acquired or developed by the Department of Defense, or to improvement of weapons or weapon systems in use by the Armed Forces. (10 U.S.C. § 2371)

The authority for R&D activities was permanent; however, the authority for prototype projects was temporary. The most recent update to the DOD's use of OT agreements came from the NDAA for FY2016 (GAO, 2016).

2. Other Transactions Described

In recent years, there has been a renewed interest in expanding OT authority within Congress. Language in the NDAA for FY2016 was intended to give the DOD additional flexibility for OT agreements. The following are three important changes to OT authority enacted with the NDAA for FY2016: It increased the dollar threshold by which OT agreements could be approved, modified the definition of a non-traditional defense contractor, and made the prototype authority for OTs permanent.

The first provision in the NDAA for FY2016 increased the dollar thresholds for which OT agreements were approved. Specifically, the NDAA for FY2016 states,

(2) The authority of this section—(A) may be exercised for a prototype project that is expected to cost the Department of Defense in excess of \$50,000,000 but not in excess of \$250,000,000 (including all options) only upon a written determination by the senior procurement executive for the agency as designated for the purpose of section 1702(c) of title 41, or, for the Defense _Advanced Research Projects Agency or the Missile Defense Agency, the director of that agency that—(i) the requirements of subsection (d) will be met; and (ii) the use of the authority of this section is essential to promoting the success of the prototype project; and (B) may be exercised for a prototype project that is expected to cost the Department of Defense in excess of \$250,000,000 (including all options) only if—(i) the Under Secretary of Defense for Acquisition, Technology, and Logistics determines in writing that – (I) the requirements of subsection (d) will be met; and (II) the use of the authority of this section is essential to meet critical national security objectives; and (ii) the congressional defense committees are notified in writing at least 30 days before such authority is exercised. (p. 893)

Another provision in the NDAA for FY2016 modified the definition of a non-traditional defense contractor. Specifically, the NDAA for FY2016 states,

(b) MODIFICATION TO DEFINITION OF NONTRADITIONAL DEFENSE CONTRACTOR.—Section 2302(9) of such title is amended to read as follows: (9) The term “nontraditional defense contractor,” with respect to a procurement or with respect to a transaction authorized under section 2371(a) or 2371b of this title, means an entity that is not currently performing and has not performed, for at least the one year period preceding the solicitation of sources by the Department of Defense for the procurement or transaction, any contract or subcontract for the Department of Defense that is subject to full coverage under the cost accounting standards prescribed pursuant to section 1502 of title 41 and the regulations implements such section. (p. 896)

B. ARMY CONTRACTING COMMAND–NEW JERSEY ESTABLISHED PRACTICES

In the following section, we discuss Army Contracting Command’s (ACC’s) established practice of using OT authority. According to the Consortium for Command, Control, and Communications in Cyberspace (C5), “ACC-NJ is the recognized leader in the Department of Defense (DOD) for OTA administration” (C5, 2016). The administration of OT agreements is accomplished by the Emerging Technologies Contracting Center (ET). According to the ACC-NJ (2016) website,

The ACC-NJ Emerging Technologies Contracting Center’s mission is to provide world class contracting, acquisition support and business advisory services to the Research, Development and Engineering Command (RDECOM), Army Armament Research and Development Center (ARDEC), Program Executive Office (PEO) Ammunition, Product Director for Joint Services, and other customers for the acquisition of Weapons, Armaments, and Ammunition Systems in all phases of Research and Development as well as initial and follow on production. This Center is also responsible for executing and managing ACC-NJ’s Grants, Cooperative Agreements and Other Transaction Agreements. (ACC-NJ, 2016)

Figure 2 illustrates ACC-NJ as the leader in OTs for the DOD in terms of total dollars obligated and total actions completed from January 2012 to August 30, 2016. DARPA is the only other contracting office that has completed a significant number of OT agreements.

Other Transaction Actions and Dollars Report

Description: This report displays the Other Transaction actions and dollars for the specified date signed range.
Filters: From Date only show values greater than or equal to '01/01/2012'; To Date only show values less than or equal to '08/30/2016'; Reveal Date only show values less than '08/30/2016'; Department ID only show values equal to '9700'; Department ID only show values equal to '9700'

Department	Contracting Office	Major Command Code	Total Actions	Total Dollars	% Total Actions	% Total Dollars
DEPT OF DEFENSE (9700)	W6QK ACC-PICA (W15QKN)	AMC	594	\$1,935,567,082.86	61.2371 %	72.1522 %
DEPT OF DEFENSE (9700)	DEF ADVANCED RESEARCH PROJECTS AGCY (HR0011)		255	\$313,921,230.78	26.2887 %	11.7021 %
DEPT OF DEFENSE (9700)	FA8811 HQ SMC LR PKK (FA8811)	AFSPC	14	\$242,570,139.00	1.4433 %	9.0423 %
DEPT OF DEFENSE (9700)	W6QK ACC-RSA COS (W91260)	AMC	30	\$75,025,732.04	3.0928 %	2.7967 %
DEPT OF DEFENSE (9700)	W4GG HQ US ARMY TACOM (W56HZV)	AMC	2	\$49,736,316.00	0.2062 %	1.8540 %
DEPT OF DEFENSE (9700)	DEFENSE THREAT REDUCTION AGENCY (HDTRA1)		18	\$31,914,841.21	1.8557 %	1.1897 %
DEPT OF DEFENSE (9700)	FA8750 AFRL RIK (FA8750)	AFMC	15	\$19,549,371.00	1.5464 %	0.7287 %
DEPT OF DEFENSE (9700)	OFFICE OF NAVAL RESEARCH (N00014)	ONR	7	\$6,853,992.00	0.7216 %	0.2555 %
DEPT OF DEFENSE (9700)	W6QK ACC-APG DURHAM (W911NF)	AMC	14	\$5,352,261.00	1.4433 %	0.1995 %
DEPT OF DEFENSE (9700)	SPACE AND NAVAL WARFARE SYSTEMS (N66001)	SPAWAR	8	\$1,446,637.00	0.8247 %	0.0539 %
DEPT OF DEFENSE (9700)	W4PZ USA MED RSCH ACQUIS ACT (W81XWH)	USAMRAA	1	\$678,889.98	0.1031 %	0.0253 %
DEPT OF DEFENSE (9700)	USSOCOM REGIONAL CONTRACTING OFFICE (H92222)		12	\$0.00	1.2371 %	0.0000 %
Total			970	\$2,682,616,492.87	100.0000 %	100.0000 %

Figure 2. Other Transaction Actions and Dollars Report. Source: General Services Administration (GSA; n.d.).

ACC-NJ has leveraged its experience and further refined the application of its OT agreement practices based on lessons learned from its vast experience with OT

agreements. In a brief to the DOD's Joint Project Manager Medical Countermeasure Systems (JPM-MCS), ACC-NJ introduced the consortium approach. ACC-NJ (2015) defined a consortium as

an association of two or more individuals, companies, organizations or governments (or any combination these entities) with the objective of participating in a common activity or pooling their resources for achieving a common goal. (p. 14)

Based on its experience with OT agreements, ACC-NJ explained that under the consortium approach, interaction between government and industry is best when one of the following conditions are set: the “consortium designates one entity as lead, employs an entity to act as single point, or forms a separate distinct company for this purpose” (ACC-NJ, 2015, p. 16). Another lesson learned is to use an administrative agent to obligate funds early in the contracting cycle and to perform an analysis on the cost of the OT agreement, as well as the “use of White Papers and open communication with Consortium membership” (ACC-NJ, 2015, p. 17). ACC-NJ has further refined lessons learned to develop OT agreement notional operating procedures, as shown in Figure 3. The efforts and the use of OT agreements by ACC-NJ have not gone unnoticed. In fact, a recent speech announcing DIUx by Secretary of Defense Ash Carter (2016) lauded the innovative approach that DIUx 2.0 and ACC-NJ employ, stating, “They did this working with experts from the Army Contracting Command New Jersey at Picatinny Arsenal” (para. 22). ACC-NJ has further refined its notional operating procedures, which are discussed further in Section D.

OTA Notional Operating Procedures

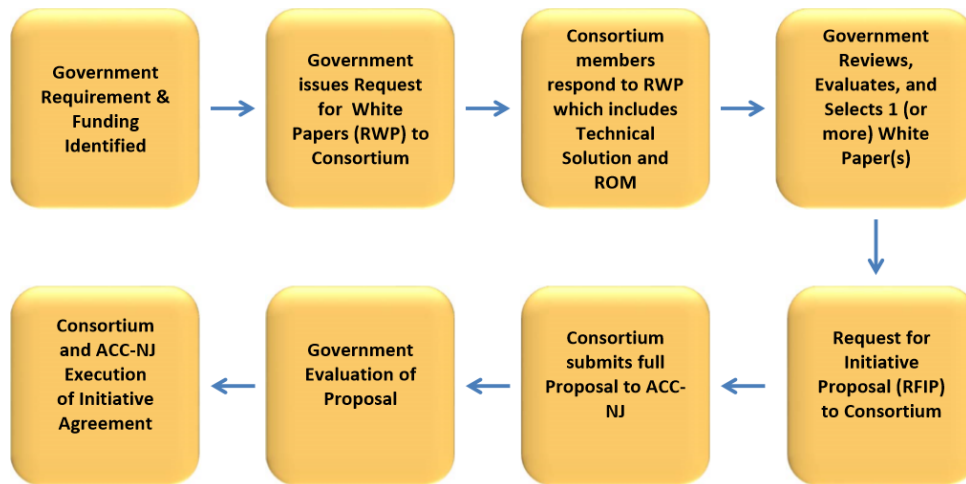


Figure 3. OTA Notional Operating Procedures. Source: ACC-NJ (2015).

C. EXISTING CONSORTIA

The DOD, through ACC-NJ, is currently using the OT authority to foster innovation. Two examples of the DOD’s use of the OT authority are the Consortium for Energy, Environment, and Demilitarization (CEED) and NSTXL.

3. Consortium for Energy, Environment, and Demilitarization

The first example of the DOD’s use of the OT authority is the CEED. The CEED is “a non-profit corporation, comprising traditional and non-traditional members in industry and academia, offering a route to simplify and improve Government access to emerging technologies” (CEED, 2016, para. 2). The CEED established a partnership with the Army and the Federal Center for Energy, Environment, and Demilitarization (FCEED) to realize the ability to leverage the OT authority (CEED, 2016). Through this partnership,

the Consortium for Energy, Environment and Demilitarization (CEED) offers a uniquely rapid, cost-efficient and collaborative contracting vehicle for companies and educational organizations seeking to enter the Federal market. As an alternative to the often complex Federal Acquisition

Regulation, which might discourage small non-traditional entities from seeking to work with the Government, CEED provides its members and eligible Federal agencies a user-friendly partnership path. (CEED, 2016)

The CEED signed an OT agreement with the Department of the Interior (DOI) in 2010 (McBride, 2013). The initial agreement “called for DoI to provide OTA acquisition support to CEED members in accordance with a Memorandum of Agreement between DoI and the Department of Defense (DOD)” (McBride, 2013). In the first two years of operation, the CEED used the OT agreement to facilitate member subcontracts totaling more than \$40 million. Due to some legality concerns arising from the DOI assisting the DOD in acquisition services, the Army deemed it more appropriate to assume the OT agreement with the CEED. In January 2013, CEED and ACC-NJ signed a three-year \$100 million ceiling OT agreement. The new OT agreement continued to use FCEED, which is collocated with ACC-NJ, as the government sponsor (McBride, 2014).

4. National Security Technology Accelerator

Another example of an OT agreement that the DOD has executed is the National Security Technology Accelerator (NSTXL). NSTXL (2015) was “Awarded an Other Transaction Authority (OTA) by DOD to advance and expand new technologies and accelerate the research and development cycle of prototypes for energy related research and development efforts” (p. 9). NSTXL (2016) described its organization as follows:

The National Security Technology Accelerator (NSTXL) is a non-profit, commercially facing consortium that connects the rapidly advancing private sector technologies closer to our military. NSTXL brings together a community of technology experts and innovators from industry, laboratories, and academic institutions to engage with Government and enable rapid technology identification and maturation that seamlessly blends government science and technology needs. Our networks evolve as technology evolves. (NSTXL, 2016)

NSTXL uses an extensive network within the technology community. The network includes more than 250,000 organizations that include industry, non-governmental organizations (NGOs), and academic institutions (NSTXL, 2015). Figure 4 shows the approach that NSTXL uses to provide innovative solutions to the DOD.

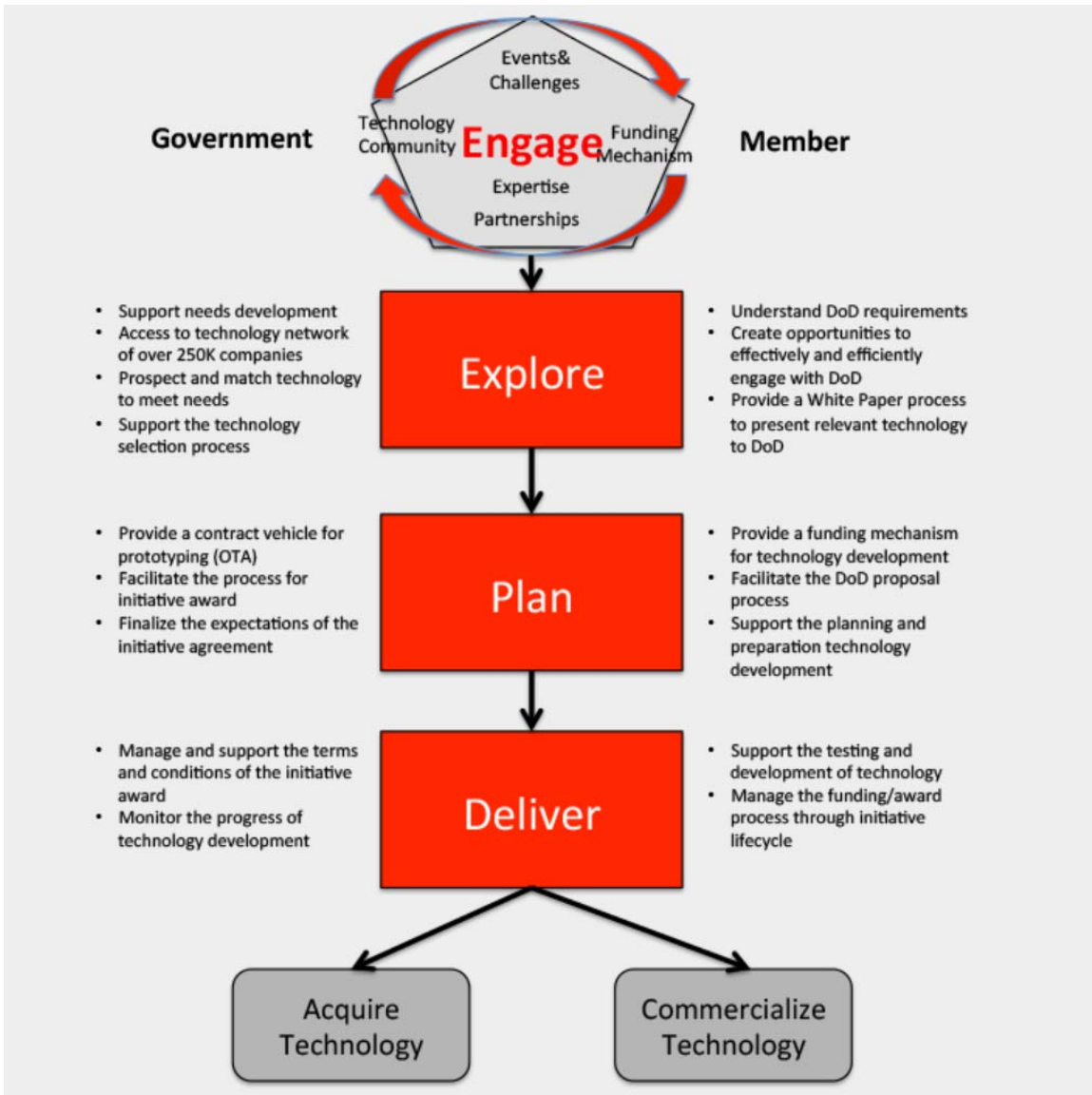


Figure 4. NSTXL Approach. Source: NSTXL (2016).

D. DEFENSE INNOVATION UNIT EXPERIMENTAL APPLICATION

In 2014, then Defense Secretary Chuck Hagel launched the Defense Innovation Initiative. The initiative was created to drive innovation throughout the entire DOD. One of the major goals of the initiative was to find ways for the DOD to become more efficient and effective in its business practices (Office of the Secretary of Defense [OSD], 2014). Directly related to the Defense Innovation Initiative, the DOD announced that it was establishing a Defense Innovation Advisory Board in March 2016. The purpose of

the advisory board is to leverage best practices from the private sector, particularly Silicon Valley, to spur innovation. The board is composed of up to 12 individuals who have an established track record of leading industry in innovation and is chaired by Alphabet Executive Chairman Eric Schmidt (OSD, 2014). Another example of the DOD's effort to become more efficient and effective was the formation of DIUx.

DIUx was officially formed in the summer of 2015 and opened its doors near Moffett Field in Mountain View, CA. DIUx was designed to increase collaboration and leverage the expertise and innovation of industry in Silicon Valley (DOD, 2015). DIUx's mission when it was established was to "strengthen existing relationships and build new ones, scout for breakthrough and emerging technologies, [and] serve as a local point of presence for the Department of Defense" (DOD, 2015).

In order to be the point presence for all of the DOD, the DIUx team is made up of active duty as well as civilian and reserve personnel. The team's role is to connect DOD technology gaps with innovative solutions from industry located in Silicon Valley. The Silicon Valley office served as a pilot location, and the DOD has already opened a second location in Boston, MA (DOD, 2015).

The DOD saw the success and potential of the DIUx model in Silicon Valley and in May 2016, Defense Secretary Carter announced DIUx 2.0. The launch of DIUx 2.0 included a number of important updates. The first was that under DIUx 2.0, DIUx began reporting directly to the secretary of defense. Changes were also made to the organizational structure within DIUx, and a managing partner was appointed (Pellerin, 2016a). According to DOD Directive 5105.85 one of the many responsibilities filled by the managing partner is "Articulates DOD interest in integrating leading edge technology into military systems and recruiting leading technical talent into the DOD civilian and uniformed workforce" (DOD, 2016). Additionally, DIUx 2.0 added organic contracting, through ACC-NJ, and budget resources for DIUx. Finally, with the launch of the new program, DIUx announced the opening of a second location in Boston, MA (Pellerin, 2016a).

With the launch of DIUx 2.0, the mission of the organization also expanded. In 2016, DOD Directive 5105.85 explained the DIUx missions as follows:

- a. Functions as an interface node between the DOD, entrepreneurs, start-up firms, and commercial technology companies in Silicon Valley, California (DIUx West); Boston, Massachusetts (DIUx East); and other U.S. technology hubs to increase DOD access to leading edge commercial technologies and technical talent.
- b. Scouts for promising commercial technology and transfers it into the DOD to ensure battlefield advantage for the next generation of warfighters, in the process pioneering procurement and acquisition pathways optimized for start-up firms and non-traditional entrants to the defense industry.
- c. Uses research and development agreements, contracts, prize competitions, and other forms of acquisition and assistance authorities to solve DOD problems while helping grow the circle of entrepreneurs and investors interested in the immense technical challenges of maintaining U.S. security.
- d. Recruits personnel from the technology sector into full-time, part-time, and term appointments, and advisory roles as part of the Force of the Future initiative, while at the same time growing the community of military veterans and Reserve Component personnel working in the technology industry.
- e. Works in coordination with the Military Departments and the National Guard Bureau to administer a unit tailor-made for Reserve Component personnel working in the technology sector. This unit will help grow the ecosystem of Reserve Component talent with expertise in commercial technology areas that are crucial to warfighting. (p. 3)

To fulfill its mission, DIUx has transitioned to using a Commercial Solutions Opening (CSO). The CSO is meant to reduce the time it takes to award a contract (DIUx, 2016). The DIUx CSO is an instrument that DIUx developed jointly with ACC-NJ. DIUx published a white paper detailing the CSO process (see Appendix). ACC-NJ refined its notional operating procedures and developed a process for the CSO, as shown in Figure 5. DIUx describes its CSO process as follows:

- First, we post current technology areas of interest.

- Then, if there’s interest on your end, you can tell us about your technology through a solution brief. Learn more about what information we’re looking for below.
- Then, we’ll get back to you within 30 days. If we’re interested in learning more, we may invite you to pitch or demo. If we’re not interested, we may or may not be able to provide substantive feedback.
- If we think there’s a good match between your solution and our customers (i.e., the men and women in uniform), we’ll invite you to provide us with a full proposal—this is the beginning of negotiating all the terms and conditions of the proposed project (DIUx, n.d., “Work With Us”).

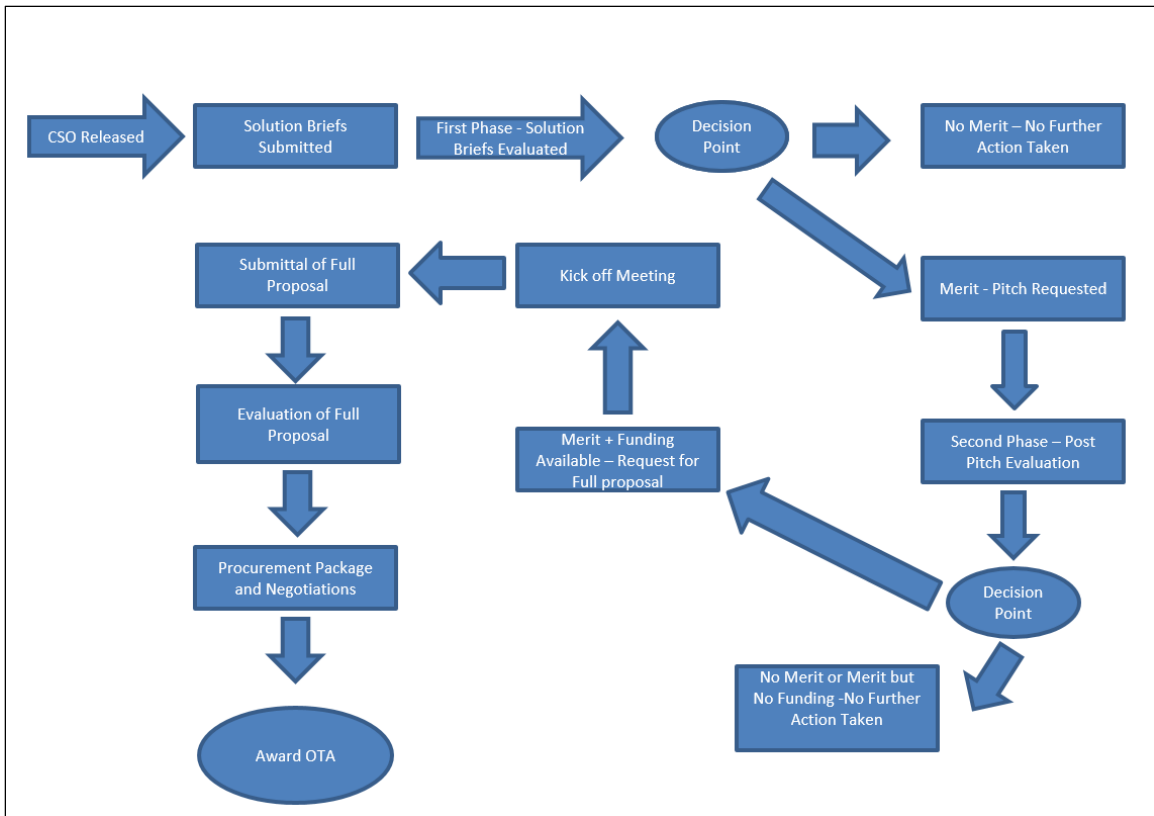


Figure 5. Competitive Award Process Map. Source: ACC-NJ (2016).

DIUx and ACC-NJ implemented the CSO process in June 2016. The first technology areas of interest were posted on June 15, 2016, and DIUx received 93 solution briefs in response to this first series of postings. Based on solution briefs and proposals received, ACC-NJ awarded the first OT agreement on July 22, 2016 (ACC-NJ, 2016). The speed and the innovative results that DIUx, specifically Raj Shah, DIUx's managing partner, and ACC-NJ delivered were recognized by Secretary of Defense Carter, who stated,

Within five weeks on the job, Raj and his team developed and launched the Commercial Solutions Opening to begin work on 15 separate prototyping projects. And the first agreement was signed in only 31 days with a company named Halo Neuroscience. They've invented a wearable device that looks like a pair of headphones and uses non-invasive electrical stimulation to increase the brain's natural ability to adapt to training. These headsets will be used by teams from our special operations forces who will work with Halo to gauge how effective their device might be to improving marksmanship, close-quarters combat skills and overall strength training. (Carter, 2016, para. 30)

THIS PAGE INTENTIONALLY LEFT BLANK

IV. BARRIERS TO GOVERNMENT–INDUSTRY COLLABORATION

Working at the “speed of business” is the goal, according to DIUx Managing Partner Raj Shah (Ferdinando, 2016). To that end, DIUx Pathways Director Lauren Schmidt said,

Rather than coming to them [industry] with very rigid conditions they have to accept and comply with to do business with us, we actually sit across the table from one another and actually hash out and negotiate all of the terms and conditions of the contract. (Ferdinando, 2016)

The aforementioned “rigid” terms and conditions consist of the following elements inherent to working with the DOD: (a) stringent acquisition rules and regulations; (b) strict audit, management, and inspection protocols; (c) risk-adverse acquisition workforce; and d) firm intellectual property and data rights. Additional industry preclusions to participation include extended contract award cycle time, defense industry mergers and acquisitions, and unpredictable funding objectives. Each of these elements serves as a barrier to government–industry collaboration, particularly among non-traditional defense contractors and technological innovators. This chapter highlights the specific impacts the existing acquisition environment has on innovation.

A. STRINGENT ACQUISITION RULES AND REGULATIONS

In a report to the House Armed Services Committee (HASC), the Panel on Business Challenges found that “the plethora of regulations specific to government and defense contracting dissuades many companies from competing for government contracts. The acquisition process is often bureaucratic and rigid, with insufficient flexibility” (Committee on Armed Services, 2012, p. vii). In many cases, the rules and regulations associated with the traditional contracting process that are designed to achieve public policy through increased competition, fair and reasonable pricing data, and small business participation have the unintended effect of stifling innovation and reducing industry participation, according to Raj Shah (Harper, 2016). Moreover, contractors’ compliance efforts can result in increased prices to DOD customers.

According to GAO Report 96–106, an independent Coopers and Lybrand study found that acquisition rules and regulations resulted in an 18% percent premium on goods and services provided to the DOD (GAO, 1996). Figure 6 illustrates what the Coopers and Lybrand study reports as the DOD’s top 10 “extra” cost drivers (that is, what constitutes the 18% premium) in terms of statutory requirements.

Cost driver	Description
DOD quality program requirements	An umbrella military specification (MIL-Q-9858A) requiring contractors to establish quality assurance programs to ensure compliance with contract requirements.
Truth in Negotiations Act	A statute (P.L. 87-653) requiring contractors to justify cost proposals and proposed contract prices with detailed cost or pricing data that must be certified as accurate, complete, and current.
Cost/schedule control system	A requirement that contractors have an integrated management control system to plan and control the execution of cost-reimbursable contracts.
Configuration management requirements	A military standard (MIL-STD-973) for DOD approval of all contractor configuration changes to technical data packages.
Contract-specific requirements	DOD-imposed requirements that are not codified in statutes, regulations, military specifications, or standards.
Defense Contract Audit Agency/Defense Contract Management Command interface	Costs deriving from daily interaction of contractor personnel with auditors from the Defense Contract Audit Agency and quality inspectors and functional experts from the Defense Contract Management Command.
Cost accounting standards	Requirements for ensuring consistent and equitable allocation of costs and for disclosing accounting practices and contractor interpretation of certain standards.
Material management and accounting system	A requirement (DFARS-242.72) for certain contractors to establish and maintain a system that accurately forecasts material usage and ensures that costs of all materials are appropriately allocated to specific contracts.
Engineering drawings	A guideline (MIL-STD-100E) for preparing engineering drawings.
Government property administration	A requirement (FAR part 45) that contractors assume responsibility for maintaining and accounting for government-owned property.

Figure 6. The DOD’s Top 10 Cost Drivers. Source: GAO (1996).

According to the National Contract Management Association (NCMA), the Truth in Negotiations Act (renamed Truthful Cost or Pricing Data Act) is intended to

protect the government when an offeror's cost is a significant factor in negotiating contract price ... to ensure it pays a fair and reasonable price ... and seeks to level the negotiation playing field by placing the Government in the same position as offerors. (NCMA, 2015)

However, in addition to the increased costs associated with compliance, William Greenwalt, a visiting fellow on behalf of the American Enterprise Institute, wrote, "the barriers that are being raised to commercial and non-traditional contractors are reaching epidemic proportions at DOD ... in pursuit of perfect transparency of costs to support pricing decisions" (Greenwalt, 2014, p. 23). Cost accounting standards (CAS) represent another barrier to government–industry collaboration, to which Greenwalt (2014) wrote,

A perpetual problem for commercial contractors is the government requiring them to provide cost data in formats that do not conform to commercial accounting systems. Commercial contractors do not normally collect cost data that the government wants or if they do, it is not in the format that DOD is used to. Not only does DOD sometimes want cost data that doesn't exist but also they want it in costly formats and do not want to pay for it. Commercial contractors' accounting systems are compliant with Generally Accepted Accounting Principles (GAAP), not the military-unique accounting systems that support the cost accounting standards. CAS accounting systems are expensive and duplicative of GAAP accounting systems. (p. 21)

GAAP applies to commercial financial statements, but not to the federal government. CAS rules determine the method of cost collection and allocation to government contracts. CAS requirements serve as a barrier to government–industry collaboration because industry partners do not want to redo their accounting systems to comply with DOD standards.

B. STRICT AUDIT, MANAGEMENT, AND INSPECTION PROTOCOLS

Inefficiencies at the Defense Contract Audit Agency (DCAA), Defense Contract Management Agency (DCMA), and DOD Inspector General (DOD IG) represent another barrier to industry participation. The DCAA acts as the DOD's audit agency, and the DCMA acts as the DOD's contract administration agency. The DOD IG serves as a policy

enforcement and oversight office. Duplicate compliance measures and a significant contract closeout backlog are among the most noteworthy inefficiencies at these agencies. Figure 7 is an excerpt from an internal USD AT&L report entitled *Eliminating Requirements Imposed on Industry Where Costs Exceed Benefits* (Husband & Nicholls, 2015) that depicts the 36 overlaps among defense compliance efforts and congressionally mandated industry requirements outlined in the Sarbanes-Oxley Act (SOX).

SOX Process	SOX Sub-processes	Potential Overlap with DFARS Business System?	Related DFARS Business System
Contract to Cash	Project Set-up	Yes	Accounting
	Defer and Recognize Revenue	Yes	Accounting
	Estimates at Completion (EAC's)	Yes	Accounting
	Billing / Accounts Receivable	Yes	Accounting
	Cash Applications / Receipts	Yes	Accounting
Payroll & Benefits	Time & Expense	Yes	Accounting
	Payroll	Yes	Accounting
	Bonus	Yes	Accounting
	Defined Contribution Plans	Yes	Accounting
	Deferred Compensation	Yes	Accounting
Procure to Pay	Vendor Master Data Purchasing	Yes	Purchasing
	Purchasing	Yes	Purchasing
	Accounts Payable	Yes	Purchasing
Entity-Level Controls	Accruals	Yes	Purchasing
	Control Environment	Yes	Accounting
	Risk Assessment	Yes	Accounting
	Information & Communication	Yes	Accounting
	Monitoring	Yes	Accounting
Equity / Stock	Control Activities	No	Accounting
	Equity	No	N/A
General IT Controls	Stock-Based Compensation	Yes	N/A
	Logical Security	Yes	Accounting, Purchasing
	Change Control	Yes	Accounting, Purchasing
	Operations	Yes	Accounting, Purchasing
Record to Report	Physical Security	Yes	Accounting, Purchasing
	GL / Account Master Data	Yes	Accounting
	Journal Entries	Yes	Accounting
	Account Reconciliations	Yes	Accounting
	Reserves & Disclosures	Yes	Accounting
Property, Plant, and Equipment	Consolidations	Yes	Accounting
	External Financial Reporting	Yes	Accounting
	Fixed Assets	Yes	Accounting
Leases	Depreciation / Amortization	Yes	Accounting
Goodwill & Intangibles	Leases	No	Accounting
	Goodwill	No	N/A
Income Taxes	Intangible Assets	No	N/A
Cost Accumulation	Business Combinations / Divestitures	No	N/A
	Tax Provision	Yes	N/A
Inventory	Cost Set-up (e.g. service centers, burdening)	Yes	Accounting
Treasury - Debt & Cash Disbursements	Rate Approval & Set-up	Yes	Accounting
	Inventory	No	MMAS
	Debt	No	N/A
	Share repurchases / special dividends	No	N/A
	Manual cash disbursements	No	N/A

Figure 7. DOD Audit Overlaps with SOX. Source: Husband & Nicholls (2015).

The redundancy is non-value added and only creates a disincentive to engage in DOD business opportunities, especially for non-traditional contractors who are unfamiliar with DOD compliance measures.

C. ACQUISITION WORKFORCE AS A BARRIER

The status of the acquisition workforce is a constant focal point of defense acquisition reform. Critical factors include staffing shortages, training deficiencies, and a risk-averse culture. These factors contribute to long procurement lead times, acquisition violations, and stymied innovation. Defense Secretary Ash Carter established the Defense Innovation Advisory Board, which comprises 15 members from the private sector and academia, to jumpstart efforts “to think outside our five-sided box and be more open to new ideas and new partnerships ... by keeping DOD imbued with a culture of innovation in people, practices, organizations and technology” (Pellerin, 2016b, p. 1). The board met for the first time in October 2016 and released an interim recommendation to “build a culture of evidence-based, outcome-driven policies and experimentation by ... offering bonuses, recognition, awards and other incentives for managers who promote innovation, give employees greater voice and encourage creativity and divergent views” (Pellerin, 2016b, p. 1). Our research examined the impact of the acquisition workforce shortage, training deficiencies, and risk-averse culture on industry participation.

1. Acquisition Workforce Shortage

The acquisition workforce consists of civilian and uniformed personnel within the logistics, technology, and contracting fields designated under the Defense Acquisition Workforce Improvement Act (DAWIA). According to a Congressional Research Service (CRS) report entitled *The Department of Defense Acquisition Workforce: Background, Analysis and Questions for Congress* (Schwartz, Francis, & O’Connor, 2016), there are 156,457 personnel comprising the DOD acquisition workforce as of December 31, 2015. That figure represents a 26% increase from FY2001 (see Figure 8). The significant employment surge was the result of DAWIA (Pub. L. No. 101–510), the Defense Acquisition Workforce Development Fund (DAWDF; Pub. L. No. 110–181), and strategic planning for the acquisition workforce (Pub. L. No. 111–84), according to the CRS report (Schwartz, Francis, & O’Connor, 2016).

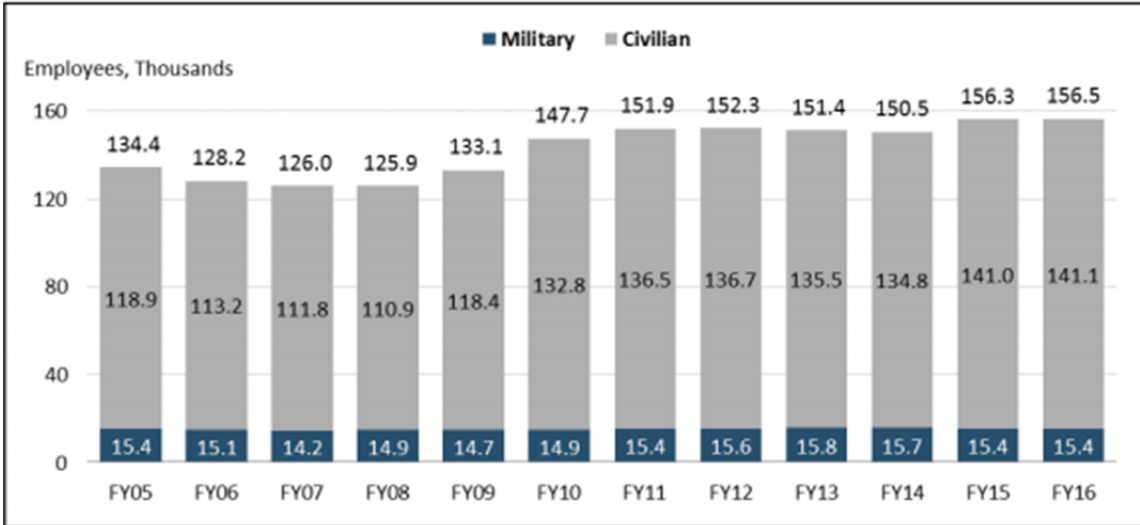


Figure 8. Acquisition Workforce Levels. Source: Schwartz, Francis, & O'Connor (2016).

Despite recruiting and retention efforts, the increase in workforce size lags behind the increase in acquisition spending (see Figure 9). Schwartz, Francis, and O'Connor (2016) argued that increased spending corresponded with increased workload and contract complexity.

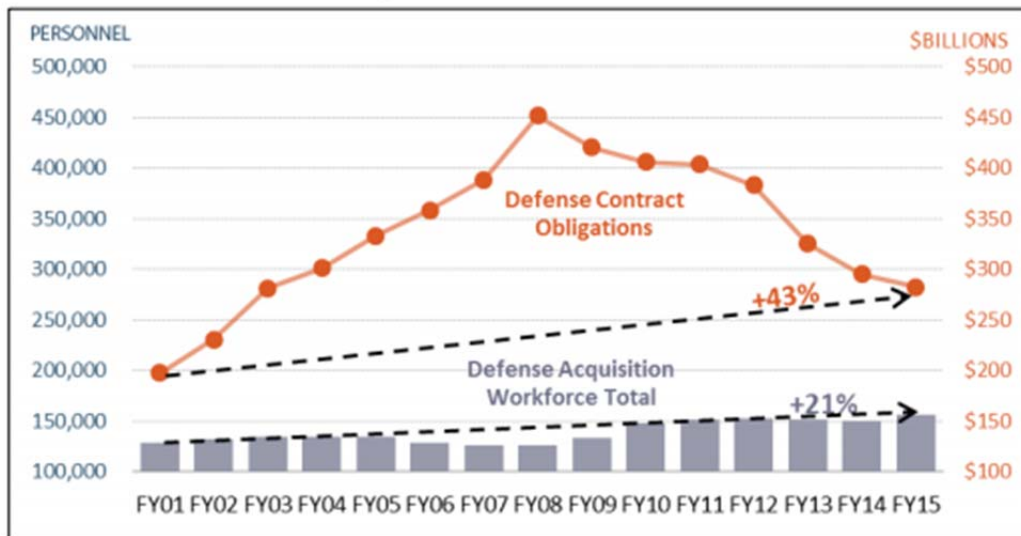


Figure 9. DOD Acquisition Obligations Comparison. Source: Schwartz, Francis, & O'Connor (2016).

Additionally, Greenwalt's (2014) assertion that

the crux of the problem is that the civil service system does not attract the level of talent necessary to manage complex weapon systems effectively and the military personnel system does not allow for military officers to have an effective career path in acquisition. (p. 33)

In contrast, Under Secretary of Defense for Acquisition, Technology, and Logistics (USD[AT&L]) Frank Kendall added that the real problem was a "lack of resources to implement [innovative ideas] and make them standard practice" (Reece, 2016, p. 1).

2. Acquisition Workforce Training Deficiencies

DAWIA was enacted as a measure to improve the certification process for professional acquisition officials, but GAO-11-892, *Better Identification, Development, and Oversight Needed for Personnel Involved in Acquiring Services* (GAO, 2013) concluded "more than half of the 430 sampled personnel involved in the 29 services acquisition contracts were non-DAWIA personnel with acquisition-related responsibilities" (GAO, 2013, p. 2). Furthermore, "no DOD organization has systematically identified non-DAWIA personnel with acquisition-related responsibilities, the competencies they need to conduct their acquisition duties, or been designated responsibility for overseeing this group" (GAO, 2013, p. 2). Figure 10 illustrates the various positions held by the 218 non-DAWIA personnel observed in the GAO study.

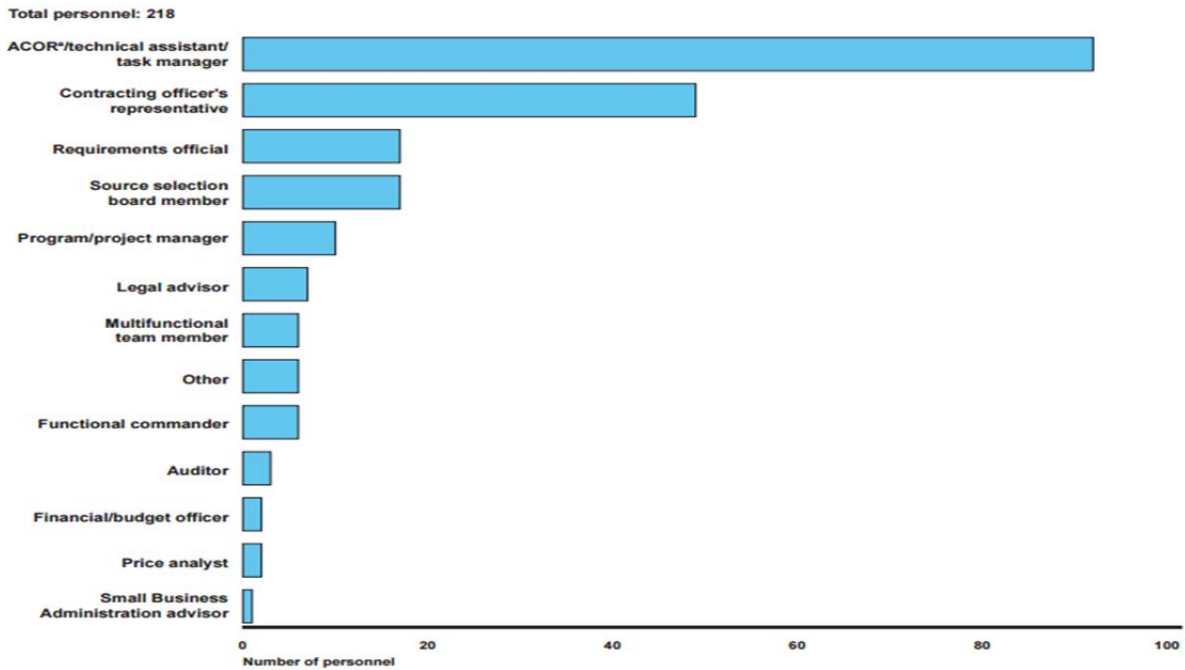


Figure 10. Non-DAWIA Acquisition Roles. Source: GAO (2013).

The GAO authors conceded that identification of non-DAWIA personnel is difficult given the complexity associated with acquisition tasks, secondary duty assignments, high personnel turnover, and blending of responsibilities (GAO, 2013; see Figure 11).

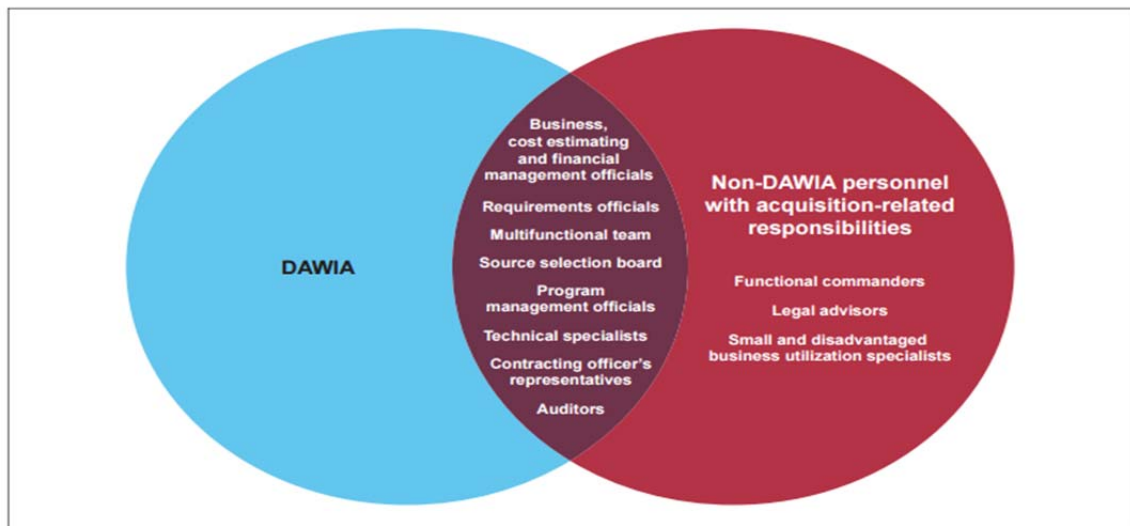


Figure 11. Overlapping Acquisition Roles. Source: GAO (2013).

The DAWDF provides annual funding to education, training, recruitment, and retention for the acquisition workforce as authorized by 10 U.S.C. § 1705, but only 39% of FY2015 funding was obligated towards training requirements (Schwartz, Francis, & O’Connor, 2016). Moreover, the push for more education and formal certification led to a backflow of Defense Acquisition University course enrollment (see Figure 12).

Course title	Number of Web-based training courses completed by non-DAWIA personnel in fiscal years 2008-10		
	2008	2009	2010
Fundamentals of Systems Acquisition Management (ACQ101)	9,245	10,007	10,191
Contracting for the rest of us (CLC011)	2,054	5,040	6,365
COR Mission with a Focus (CLC106)	12,787	20,807	28,033
Basic Math Tutorial (CLC024)	1,054	1,257	1,210
COR Overview (CLC012)	1,879	2,356	2,284
Performance Based Services Acquisition (CLC013)	1,706	2,138	3,205
Contracting Officer’s Representative (CLC222)	0	0	227
Overview of Acquisition Ethics (CLM003)	13,018	24,027	36,886
Improved Statement of Work (CLM031)	333	1,199	1,405
Contracting Overview (CLM024)	1,813	4,022	5,438
Core Concepts for Requirements Management (RQM110)	376	750	786
Number of Web-based training courses completed by non-DAWIA personnel	44,265	71,603	96,030

Figure 12. DAU Enrollment from 2008–2010. Source: GAO (2013).

It came as no surprise that the GAO cited the DOD acquisition workforce as the primary challenge associated with effective contract management in its 2015 High-Risk Report (GAO, 2015).

3. Risk-Averse Culture

In his working paper entitled *50 Legislative Ideas to Reform Defense Acquisition* (Greenwalt, 2014), William Greenwalt argued that increased oversight has resulted in a “workforce engulfed by a culture of risk aversion and compliance focused on intolerance for risk (Greenwalt, 2014, pp. 33–34). General Paul Selva, vice chairman of the Joint Chiefs of Staff, commented that

Innovation is only good if you’re right. Failure is not an option. Asking the hard questions is only acceptable if you know the answer and none of that fosters innovation. ... We don’t have a good place in the system for

failure to happen. System level failure occurs in the prototyping step. Prototyping is an area the [defense] department has underemphasized within the last 10–15 years. (Pomerleau, 2016, p. 2).

Moreover, the emphasis to follow a rigid contract checklist led to a risk-averse culture, according to the HASC-sponsored Panel on Business Challenges in the Defense Industry, referencing the preferred supplier program as an example of aiding acquisition officials in source-selection strategy. The panel concluded that the preferred supplier program also “stifles competition and stands as a barrier to entry for new companies entering the market” (Committee on Armed Services, p. 24). The combined lack of experience and training deficiencies promote a workforce incapable of fostering a culture of innovative action.

D. PROTECTING INTELLECTUAL PROPERTY RIGHTS

The DOD seeks to buy intellectual property (IP) for the sake of competition during a contract re-compete or to pursue organic development (Erwin, 2012). Most industry partners recognize the DOD strategy and compensate for this during contract negotiations. However, “the concept of IP is fundamental to a capitalist society. A company’s interest in protecting its IP from uncompensated exploitation is as important as a farmer’s interest in protecting their seed corn” (Erwin, 2012, p. 1). The Panel on Business Challenges in the Defense Industry concluded the two types of intellectual property that are most concerning to non-traditional contractors are patent rights and rights in technical data. Patent rights refer to a “grant commissioned by the government for which they maintain exclusive rights to make, use or sell an invention for a fixed time period” (Committee on Armed Services, p. 63). Technical data, according to the Better Buying Power pamphlet entitled *Understanding and Leveraging Data Rights in DOD Acquisitions*, includes any recorded information of a scientific or technical nature. License rights depend upon the extent of the government’s investment in the technological development, whether the technology is commercial or non-commercial, and any mutually agreeable special license rights (DOD Open Architecture Team, 2014). Arash Heidarian, an Amazon.com attorney, told a congressional panel on technical data rights that “certain regulations might discourage commercial vendors from developing

code for the government because they could stymie investments in technology” (Censer, 2016, p. 1). Bill Elkington, a board member from Rockwell Collins, echoed this thought by stating that “[technical data rights] policies may also cause companies not to invest their own money in developing new defense technologies” (Censer, 2016, p. 1). The DOD’s stance on IP is a major source of contention for technology firms and a considerable roadblock to attracting non-traditional participants.

E. OTHER BARRIERS TO INDUSTRY PARTICIPATION

Based on interviews conducted with public and private sector representatives, non-traditional companies are reluctant to pursue DOD business opportunities because of the long procurement lead times, a saturated defense industry, and an unpredictable funding environment. According to Lauren Schmidt, DIUx pathways director, the “typical contract cycle time could be six months or even a year” (Ferdinando, 2016, p. 2). Non-traditional contractors are also concerned by the growing trend of defense industry mergers and acquisitions, which is a sentiment shared by DOD. “Without competition, the reasoning goes, there is no choice, and little compelling incentive to improve or innovate” (Evans, 2016, p. 2). Under Secretary Kendall warned, “with size comes power, and [defense] department’s experience with large defense contractors is that they are not hesitant to use this power for corporate advantage” (Evans, 2016, p. 2). Finally, the recent trend of unstable budget objectives in the form of continuing resolutions and the impact of sequestration dissuade non-traditional companies from participation because they often lack the financial capital to continue operating without upfront or sustained investments.

THIS PAGE INTENTIONALLY LEFT BLANK

V. HOW CAN AN OT AGREEMENT ADDRESS THESE ISSUES?

In this chapter, we discuss how the use of OT agreements can address government preclusions to innovation. We discuss the elimination/reduction of stringent acquisition rules and regulations as well as the use of consortiums to interact between government and industry. We also examine the use of OT agreements to address industry participation with the DOD. We discuss the negotiable/flexible nature of OTs as well as their ability to enable non-traditional companies to engage with the DOD in a more efficient and collaborative manner.

A. THE USE OF OT AGREEMENTS TO ADDRESS GOVERNMENT PRECLUSIONS TO INNOVATION

In the following sections, we discuss the use of OT agreements to address government preclusions to innovation. Specifically, the elimination/reduction of stringent acquisition rules and regulations as well as the use of consortiums to interact between government and industry.

1. Elimination/Reduction of Stringent Acquisition Rules and Regulations

In Chapter III, we discussed the additional authority granted by the FY2016 NDAA to the DOD in regards to OT agreements. Additionally, in Chapter IV, we discussed specific acquisition rules and regulations that could preclude the government from innovation. In this section, we discuss how the use of OT agreements can reduce stringent acquisition rules and regulations and add greater flexibility in government acquisition. Halchin (2011) described the added flexibility by stating that

by using an OT instead of a contract, an agency and its partners are able to develop a flexible arrangement tailored to the project and the needs of the participants: “Other Transactions are meant to present the Government and contractor with a ‘blank page’ from which to begin when negotiating such instruments.” (p. 2)

Greater flexibility can also be considered in terms of the time it takes to award a contract. DIUx recently announced that it has significantly reduced the amount of time it takes to award a contract using its innovative CSO approach. Lauren Schmidt, the

pathways director at DIUx, described the innovative CSO process by stating, “The CSO has changed the way the department does business. The process is much faster, as a typical contract cycle time could be six months or even a year,” (Ferdinando, 2016, para. 19). Additionally, according to DIUx’s managing partner, Raj Shah,

DIUx is using a “reliable and transparent” contracting mechanism, the Commercial Solutions Opening, which is based on language from the fiscal year 2016 National Defense Authorization Act and available to all entities within the DOD. This enables us and DIUx to work at the speed of business. Under the CSO, the average time for awarding a contract is 59 days. That includes the time a company responds to a solicitation to the final contract. Core to our value and our approach here at DIUx is to help nontraditional vendors work with the department, so we get access to their technology earlier and more directly than we normally would. The CSO facilitates fast, flexible and collaborative work between DOD and technology companies that traditionally have not done business with the department. (Ferdinando, 2016, para. 12)

Additionally, the DOD OT Guide lists 21 different statutes that apply to government acquisitions that do not apply when using OT agreements for prototype projects (USD[AT&L], 2002, pp. 41–42). The use of OT agreements and, more specifically, the use of OT agreements for prototype projects gives the government relief from several acquisition rules and regulations. DIUx (n.d.) described the OT agreement for prototype projects and the relief from acquisition rules and regulations by stating,

An OTA is a legally binding contractual instrument. It is used specifically for prototype projects directly related to enhancing mission effectiveness of military personnel and the supporting platforms, systems, components, or materials proposed to be acquired or developed—or for the improvement of platforms, systems, components, or materials in use by the armed forces. It is NEITHER a procurement contract, grant, or cooperative agreement overseen by Federal Acquisition Regulations, NOR is it bound by the Competition in Contracting Act, Bayh-Dole & Rights in Technical Data, the Truth in Negotiations Act, the Contract Disputes Act, the Procurement Protest System, and the Procurement Integrity Act, and Grants and Agreements Regulations. (DIUx, n.d., “Work With Us”)

2. The Use of Consortia to Interact between Government and Industry

In Chapter III, we discussed the existing consortia, CEED, and NSTXL, and how the consortia are constructed to foster innovation. In describing OT authority, NSTXL

stated that “This contracting vehicle allows for non-traditional companies and start-ups to engage with DOD in a much more efficient and collaborative manner,” (National Security Technology Accelerator (NSTXL, personal communication, October 4, 2016). The two consortia that we have discussed, CEED and NSTXL, each have their own way of connecting the government and industry.

As described in Chapter III, the CEED is “a non-profit corporation, comprising traditional and non-traditional members in industry and academia, offering a route to simplify and improve Government access to emerging technologies” (CEED, 2016, para. 2). Additionally, the CEED employs a cooperative enterprise model, as shown in Figure 13. Under this model,

The U.S. Army Armament Research Development and Engineering Center (ARDEC) at Picatinny Arsenal, NJ, is the sponsoring government organization in the DOD for CEED’s OTA, and ARDEC facilitates use of the OTA by Program Mangers. The Army Contracting Command — New Jersey provides acquisition services and manages the OTA. CEED holds the OTA and serves as both the consortium manger and contract administrator, providing a single interface between consortium members and the Government. Government requirements flow through CEED, and project execution is sub-contracted directly to its members using commercial practice. (CEED, n.d.)

As shown in Figure 13, the CEED acts as an intermediary between government and industry. It performs a number of different tasks for both the government and the individual companies in its consortium. The CEED (2016) website describes the tasks in the following manner:

As prime contractor, CEED, through its Contracts Manager, handles day-to-day administration and management of the subcontracts. Utilizing the expertise gained over 30 years of government and commercial prime and subcontract administration, CEED’s Contracts Manager assists members throughout the life of a proposal, including fact-finding, negotiation, award process, and post-award administration of the Government’s Research Project Award and associated Consortium member Subcontract; performance monitoring; deliverables submittal; and invoice review. (CEED 2016)

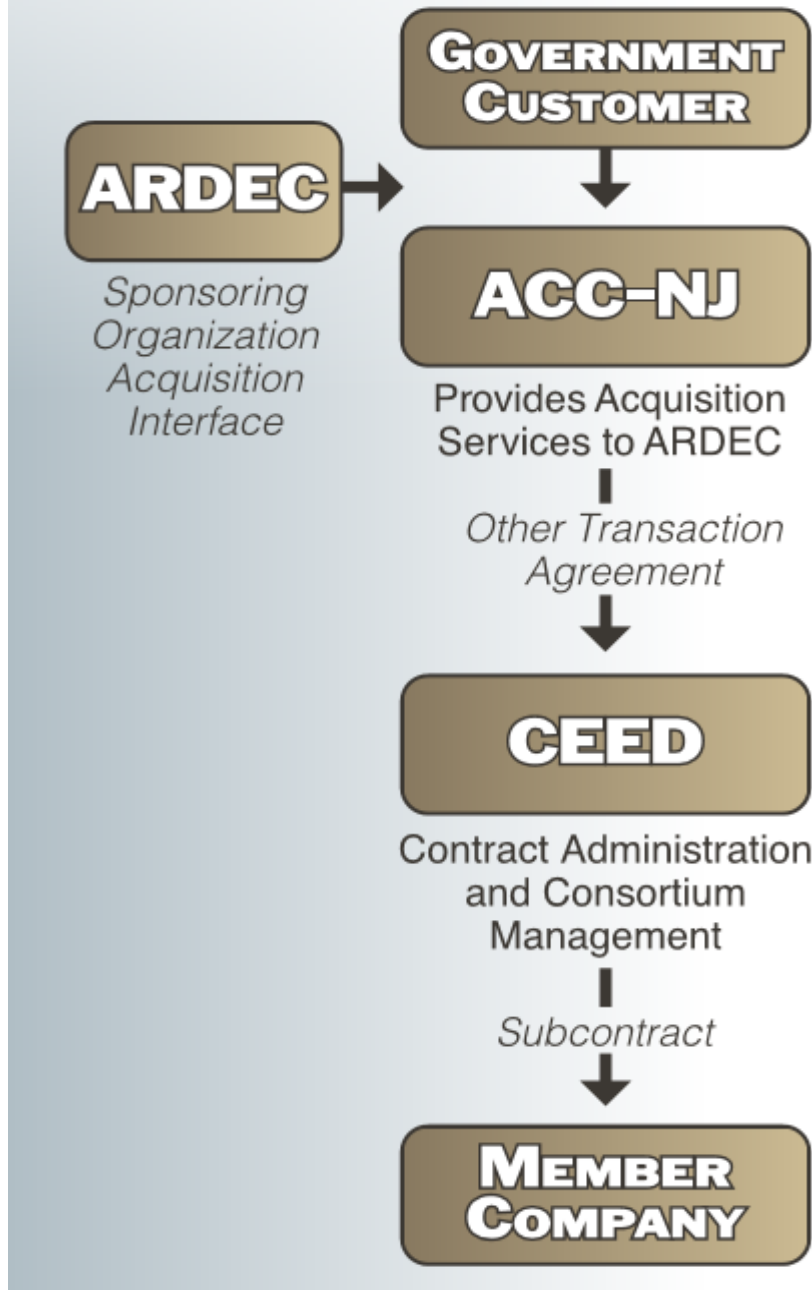


Figure 13. Cooperative Enterprise Model. Source: CEED (n.d.).

The NSTXL employs a process similar to the CEED process. As described in Chapter III, “NSTXL is a non-profit, commercially facing consortium that connects the rapidly advancing private sector technologies closer to our military” (NSTXL, n.d.). NSTXL employs a process to bring the government and industry together, as shown in Figure 14. Different from the CEED model, the NSTXL model is not tied to a particular program office.

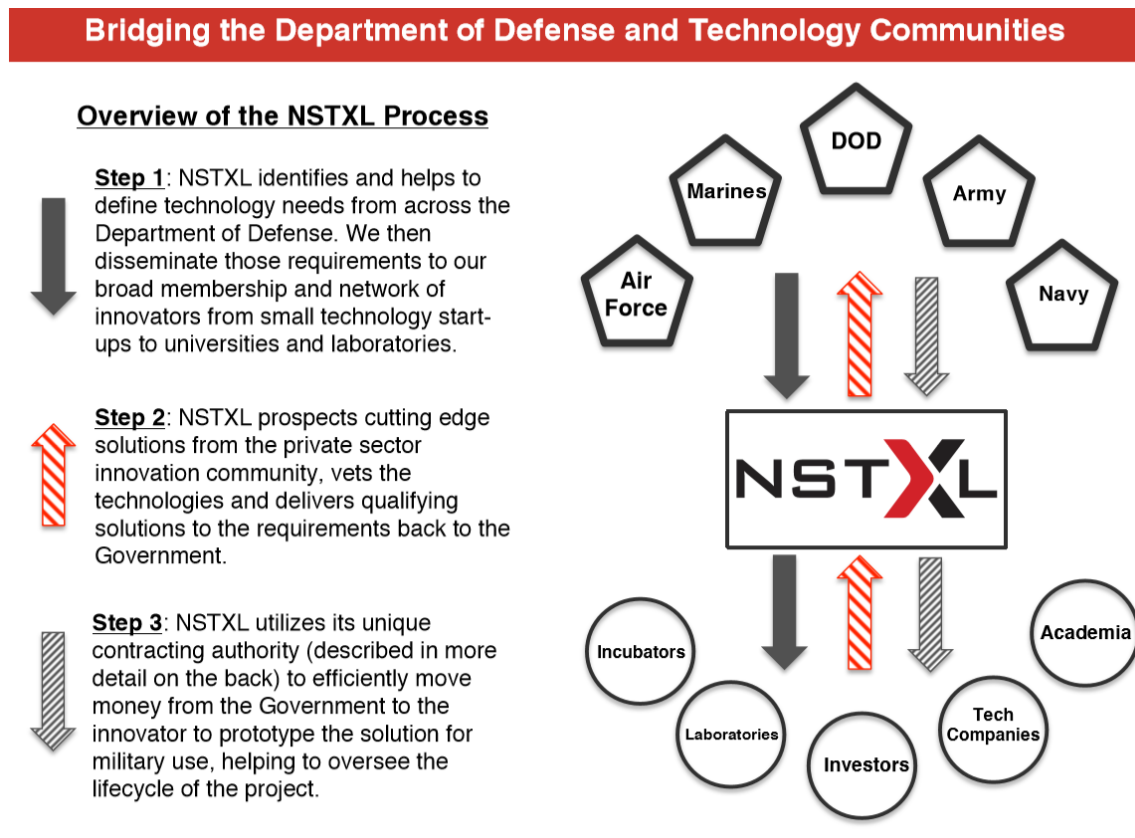


Figure 14. NSTXL Process for Improving Government-Industry Interactions.
Source: NSTXL, personal communication, October 4, 2016.

Similar to the CEED, NSTXL also employs a process that aids both the government and industry. NSTXL describes its process, as shown in Figure 15, by stating,

NSTXL operates a simple and dynamic process to bring together the innovation community and Government to meet the technology needs of

the Department of Defense. Our approach goes beyond simply connecting problems and solutions. NSTXL brings its expertise in both government contracting and technology commercialization to help each step of the way from problem identification to delivery of solution. (NSTXL, personal communication, October 4, 2016.)

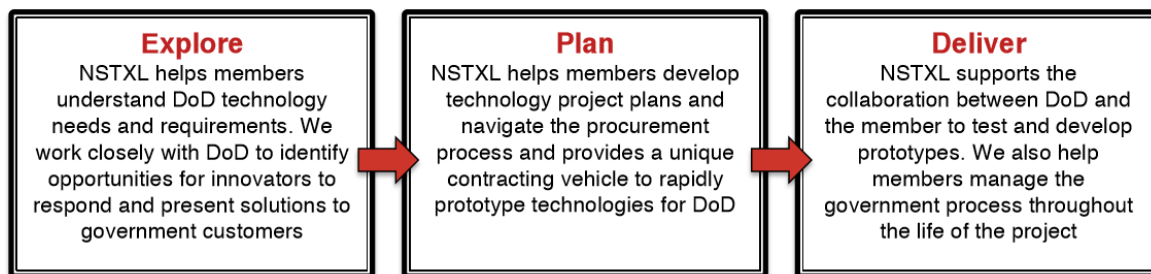


Figure 15. Supporting Innovators and the Tech Community. Source: NSTXL, personal communication, October 4, 2016.

B. THE USE OF OT AGREEMENTS TO ADDRESS INDUSTRY PRECLUSIONS TO GOVERNMENT PARTICIPATION

The key themes regarding the use of OT agreements to address government preclusions to innovation can also be applied to industry preclusion to government participation. In the following sections, we discuss the negotiable and flexible nature of OT agreements, which allows non-traditional companies to engage with the DOD in a more efficient and collaborative manner.

1. Negotiability and Flexibility of OT Agreements

In Chapter IV, we discussed several items that preclude industry from participation, including intellectual property/data rights and inflexible FAR clauses. One of the ways that the use of OT agreements addresses these items is that their use grants industry additional negotiation power and greater flexibility when negotiating contracts. DIUx’s innovative CSO approach allows a larger degree of flexibility and negotiation; this flexibility is described by DIUx pathways director Lauren Schmidt:

The CSO is also flexible and collaborative. Rather than coming to them with very rigid conditions they have to accept and comply with to do business with us, we can actually sit across the table from one another and

actually hash out and negotiate all of the terms and conditions of the contract. (Ferdinando, 2016, para. 19)

Additionally, according to the DIUx (n.d.) website, nearly every aspect of the OT agreement is negotiable. The DIUx website also lists the following as benefits of the OT agreement and the CSO process:

- A streamlined application process requiring only minimal corporate and technical information
- Flexibility to use best practices with relief from federal acquisition regulations
- No mandatory cost accounting standards or reporting requirements
- Certified cost and pricing data is not required
- Fast track selection timelines with most awards within 30 calendar days of proposal submission
- Negotiable payment terms
- Non-dilutive capital
- Negotiable intellectual property rights
- Direct feedback from operators, customers and users within the DOD to help product teams develop and hone product design and functionality
- Potential follow-on funding for promising technologies and sponsorship of user test cases for prototypes
- Successful products and technologies may be eligible for accelerated procurement by the DOD (DIUx, n.d.)

As described in Chapter IV, one the largest preclusions to industry participation is intellectual property/data rights. As we described in the previous paragraph, DIUx identifies one of the benefits of using the OT agreement and CSO process as negotiable intellectual property rights. DIUx further differentiates the intellectual property rights as follows:

Prior to the start of a project, it is important that the company identify rights in preexisting data. In general, companies retain ownership of IP

assets created during the effort. The DOD is usually afforded license rights to use these assets in accordance with the agreed OTA terms and conditions. These rights control how the DOD can use, disclose, or reproduce company-owned information. (DIUx, n.d.)

In a recent speech by Secretary of Defense Ash Carter (2016), he discussed the benefits of the additional negotiation power and greater flexibility when negotiating contracts:

This new approach is already generating lots of enthusiasm. Our military services, combatant commands and defense agencies like the speed and the agility it affords. Tech companies like that they can work with DIUx to design projects jointly, negotiate appropriate agreement clauses—including those concerning intellectual property rights—and move rapidly to make adjustments as needed. And there's value for everyone in being able to start with a problem set and a few perimeters, rather than having to meet a specific laundry list of predetermined and sometimes rigid capability requirements, which is how it usually works in defense acquisition. At DIUx, companies get the freedom to engage in the discovery process, which is often the most interesting part, and customers get more innovative solutions. (para. 29)

The GAO has also cited the flexibility of using OT agreements. According to the GAO (2016), “Officials at 8 of the 11 agencies told us that other transaction authority provided flexibility to develop customized agreements with entities and accomplish projects that they could not have achieved using traditional contracting mechanisms” (p. 12). The GAO report also states that intellectual property rights are of primary concern for industry and companies doing business with the government. The GAO report also states,

According to agency officials, some entities—particularly companies that have not typically done business with the federal government—wished to secure greater protection of intellectual property rights than would be possible under traditional contracting mechanisms. (p. 12)

Denise Scott (n.d.), chief at the U.S. Army Research, Development and Engineering Command (RDECOM) ARDEC Legal Office, describes the negotiation/flexibility benefits of OT agreements as follows:

- Don't feel constrained by previous USG contract practices and conventions
 - May use tailored FAR provisions or not

- No automatic unilateral changes or equitable adjustment
- No automatic Termination for Convenience or Default
- Intellectual property negotiable (p. 12)

2. Increased Efficiency and Collaboration

The use of OT agreements allows non-traditional companies to engage with the DOD in a more efficient and collaborative manner. In Chapter III, we discussed the statutory definition of a nontraditional defense contractor. The DIUx (n.d.) website identified nontraditional defense contractors as

an entity that is not currently performing and has not performed, for at least the one-year period preceding the solicitation of sources by the DOD for the procurement or transaction, any contract or subcontract for the DOD that is subject to full coverage under the cost accounting standards (CAS) prescribed pursuant to section 1502 of title 41 of the United States Code and the regulations implementing such section. Full CAS coverage applies to contractor business units that either receive a single CAS-covered contract award of \$50M or more or received \$50M or more in net CAS-covered contracts during its preceding cost accounting period. (“Work with Us”)

As seen from this statement, the DIUx references CAS in its definition of a nontraditional defense contractor. The GAO (2016) identified government CAS as the other major preclusion to industry participation. According to the GAO (2016),

Officials further noted that some entities also viewed making their accounting systems compliant with federal standards, which could be required with traditional mechanisms, as too great a burden in terms of time or cost. Agencies were able to use other transaction authority to craft agreements addressing these concerns. (p. 12)

DIUx is using its innovative approach to show that using OT agreements can encourage nontraditional companies to participate with the DOD. According to DIUx Managing Partner Raj Shah, “In the last quarter of fiscal year 2016, DIUx awarded 12 agreements for a total of \$36 million” (Ferdinando, 2016, para. 7). Additionally, according to Shah, “The mechanism “facilitates fast, flexible and collaborative work between DOD and technology companies that traditionally have not done business with the department. This enables us ... to work at the speed of business” (Harper, 2016, para. 6).

Furthermore, Denise Scott (n.d.), chief at RDECOM–ARDEC Legal Office, further defined the advantages of using an OT agreement related to CAS and payment provisions as:

- Flexible Payment Provisions
 - No mandatory cost accounting standards/reporting
 - No certified cost and pricing data
 - Commercial standards
 - Use payable milestones (p. 13)

VI. SUMMARY

This chapter provides the conclusions that resulted from our analysis of OT agreements to acquire innovative renewable energy solutions for the DON. This chapter also provides recommendations for the use of OT authority for innovative energy solutions and prototypes.

A. CONCLUSIONS

Our objective for this research project was to determine whether the use of OT agreements would improve the effectiveness and efficiency of the DON's acquisition of innovative renewable energy solutions. Our primary objective was met by answering the following four questions identified in Chapter I:

1. What is an OT agreement and how can it be applied?
2. What precludes industry from participating in the DON's renewable energy marketplace?
3. How can an OT agreement address industry and government preclusions?
4. How can the DON apply lessons learned to incorporate OT agreements into a new acquisition strategy for its energy task forces?

Question 1 was answered in Chapter III. Our research defined an OT as an alternative tool that a federal entity can use for research and development purposes (Halchin, 2011). It also defined OT in what it is not: "an OT is not a contract, grant, or cooperative agreement" (Halchin, 2011, p. 3). The application of an OT agreement was discussed in both Chapters II and III, and under 10 U.S.C. § 2371b, at least one of the following criteria may be met:

1. There is at least one nontraditional defense contractor participating to a significant extent in the prototype project.
2. All significant participants in the transaction other than the Federal Government are small businesses or nontraditional defense contractors.
3. At least one third of the total cost of the prototype project is to be paid out of funds provided by parties to the transaction other than the Federal Government.

4. The senior procurement executive for the agency determines in writing that exceptional circumstances justify the use of a transaction that provides for innovative business arrangements or structures that would not be feasible or appropriate under a contract, or would provide an opportunity to expand the defense supply base in a manner that would not be practical or feasible under a contract. (10 U.S.C. § 2371b)

In summary, not every procurement will meet the criteria for an OT agreement. As stated in Chapter II and 10 U.S.C. § 2371b, this authority is used to

carry out prototype projects that are directly relevant to enhancing the mission effectiveness of military personnel and the supporting platforms, systems, components, or materials proposed to be acquired or developed by the Department of Defense, or to improvement of platforms, systems, components, or materials in use by the armed forces. (10 U.S.C. § 2371b)

While the application of the OTA is to carry out prototype projects, the OTA does open up a large pool of non-traditional contractors in technologically innovative areas like Silicon Valley, Boston, and Austin. These areas are the recognized hubs of technological innovation in the United States, which is why DIUx has opened locations there (Pellerin, 2016b).

Chapter IV answered the second question about what barriers government creates that preclude industry from participating in the DON's renewable market place. We believe that stringent acquisition rules and regulations prevent startup companies and nontraditional contractors from conducting business with the federal government. Requirements for CAS and inspection protocols also create a barrier for industry participation. While many opportunities for industry to work with the federal government may be lucrative, the federal government's regulations are extremely difficult for a small business to maneuver. Additionally, even if a business is willing to work through the bureaucratic requirements, the long procurement lead-time and budget uncertainties discourage participation from companies that lack the financial capital to sustain their company during the acquisition process.

Chapter V answered the third question about how an OT agreement can address the industry and government preclusions. We believe OT agreements eliminate or reduce the acquisition rules and regulation requirements, enable the DON to develop flexible

arrangements with industry, and completely streamline the acquisition process. In addition to streamlining the acquisition process, the available consortiums are able to connect the government with a broader industrial base than the traditional federal business opportunity website. The final question and our primary objective is answered in our recommendations.

B. FINDINGS AND RECOMMENDATIONS

OT agreements offer a more efficient and effective means of acquiring innovative renewable energy solutions. Table 2 illustrates findings from our research and recommendations for DON’s use and application of OT authority.

Table 2. Findings and Recommendations

	Finding	Recommendation
1.	Acquisition workforce lacks knowledge to the uses and application of OT authority	Educate acquisition workforce on the benefits of the use and application of OT authority
2.	DON does not leverage existing DOD OT expertise	Partner with DIUx or ACC-NJ to leverage their OT expertise and grow organic capability
3.	DON does not leverage non-traditional contractors’ innovative technological expertise to acquire renewable energy solutions	Partner with non-profit OT consortiums, such as NSTXL and CEED, to leverage innovative technological advances in the procurement of renewable energy solutions

C. THE WAY AHEAD

As stated by former Secretary of Defense Chuck Hagel, “America’s continued strategic dominance will rely on innovation and adaptability across our defense enterprise” (OSD, 2014). This applies to anything from advancing weapon systems to finding innovative solutions to reduce energy requirements. Whether it be photovoltaic devices to charge batteries for handheld radios or an innovative type of wind turbine to generate power for naval stations and housing, the Navy should look for every opportunity to expand the pool of the private workforce to obtain that technology. Our

recommended course of action is to take all steps within legal limits to develop better, cheaper, more innovative technology that continues to support the Defense Innovation Initiative, SECNAV goals, and the warfighter. To facilitate this course of action, we recommend the use of OTs for all qualifying acquisitions.

We recommend the Navy use a two-phased approach. The primary goal of phase one is to educate the acquisition work force. In interviews conducted with several DON offices, we learned that OT agreements weren't used to meet the 1GW goal. Additionally, we determined through these interviews that there was little familiarity with OT agreements. DON should develop a specific training and procurement guide for OT agreements utilizing the hand book of methods and best practices developed by DASD(MIBP), Director DPAP and ASD(R&E) (OUSD[AT&L], 2015). This guide must ensure the widest dissemination and be sent to every major systems command and program office. It should be required reading for anyone involved in the acquisition process, and most specifically program and contracting officers.

In addition to developing a training and procurement guide, Defense Acquisition University (DAU) should develop a resident training course for OTs. The only course DAU has to train the workforce on OTs is Continuous Learning Course (CLC) 035, "Other Transaction Authority for Prototype Projects." The course was last modified in March 2014, prior to the FY2016 NDAA and expanded OT authority.

Sponsoring activities should familiarize themselves with the capabilities of DIUx and the nonprofits CEED and NSTXL. As previously identified, using an existing consortium enables the advertisement of a sponsor's requirements to thousands of non-traditional contractors, and utilizing existing consortiums and DIUx provides a wider platform than federal business opportunities. Program offices should provide liaisons to DIUx to learn best practices and develop local procedures for utilizing OTs. In phase one, DON should utilize ACC-NJ for all contract action until the workforce is trained and familiar with the use of OT.

After the workforce is trained and the Navy has developed organic capabilities, DON should roll out phase two. During the second phase, DON should use its existing

warrant authorities to award OT agreements; in order to avoid overtaxing the workforce at ACC-NJ and any potential fees that may have to be paid to ACC-NJ by the DON. The DON has a capable contracting workforce, and with the appropriate training, its ability to award OT agreements will increase the DON's capability to do so.

In summary, we believe the DON must take all actions to obtain and operate with best-in-class technology. It is our opinion that one of those actions is to utilize OT authority for acquiring innovative energy solutions. Utilizing OT authority and working with DIUx and other OT consortiums will enable the DON to procure cutting-edge technology and enable the DON to work at the "speed of business."

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX. COMMERCIAL SOLUTIONS OPENING (CSO)

As described in Chapter III ,the CSO is an instrument that DIUx developed jointly with ACC-NJ. DIUx published a white paper detailing the CSO process. The white paper is a reproduction and was retrieved in its entirety from the DIUx website (DIUx, n.d., “Work With Us,”).

Commercial Solutions Opening (CSO)

Office of the Secretary of Defense
Defense Innovation Unit (Experimental)

SECTION 1 - INTRODUCTION

1.1 Background and Authority

The 2014 Quadrennial Defense Review (QDR) established innovation as a central line of effort in the national defense strategy of the United States. Asymmetric technological capabilities enabling the U.S. to maintain a decisive military advantage over its adversaries and peer competitors are steadily eroding. Globalization has contributed significantly to a renaissance in commercial innovation fueled by venture capital investment that far exceeds the research and development budget of the Department of Defense (DOD). As a result, the global technology ‘water line’ has risen faster than DOD’s ability to outpace it alone. More so, rogue nations and non-state actors have gained ready access to new technology leading to an advancement in their offensive capabilities. Consequently, the Secretary of Defense launched the Defense Innovation Unit (Experimental), or DIUx, in order to accelerate the development, procurement and integration of commercially-derived disruptive capabilities to regain our nation’s technological lead and enabling a third offset strategy.

Under the authority of 10 U.S.C. 2371b, DIUx is interested in awarding funding agreements (agreements) to nontraditional and traditional defense contractors to carry out prototype projects that are directly relevant to enhancing the mission effectiveness of military personnel and the supporting platforms, systems, components, or materials proposed to be acquired or developed by the Department of Defense, or to improvement of platforms, systems, components, or materials in use by the armed forces. The information provided in this Commercial Solutions Opening (CSO) is intended to ensure that to the maximum extent practicable, competitive procedures are used when entering into agreements to carry out these prototype projects.

1.2 CSO Procedure

This CSO is seeking proposals for innovative, commercial technologies that accelerate attainment of asymmetric defense capabilities. In this context, innovative means any new technology, process, or business practice, or any new application of an existing technology, process, or business practice that contributes to the sustainment of global peace and U.S. national security.

This is an open (available for 5 years), two-step (solution brief/demonstration followed by proposal) CSO. This CSO is considered a competitive process. Solution briefs shall be submitted as specified in Section 3, Part A of this CSO. The Government will evaluate solution briefs against the criteria stated in this announcement. Those Companies whose solution briefs are evaluated to be of merit may, if funding is available, be invited to submit a formal proposal following the instructions provided in Section 3, Part B of this CSO or, alternatively, held within a Government portal for a period not to exceed 12 months during which time the Government may identify the concept for funding. If the Company's solution brief is identified for funding during this period, they will be invited to submit a formal proposal following the instructions provided in Section 3, Part B of this CSO. The Government may also invite Companies to demonstrate their technology following a solution brief review. The Government does not anticipate paying Companies for demonstrations.

The Government may engage in discussions with Companies to include discussions during the development of the formal proposal.

The Government may add additional topics of interest at any time. Interested Companies are encouraged to frequently check the CSO for updates.

A prototype can generally be described as a physical or virtual model used to evaluate the technical or manufacturing feasibility or military utility of a particular technology or process, concept, end item or system. The quantity developed should be limited to that needed to prove technical or manufacturing feasibility or evaluate military utility. This CSO will result in the award of prototype projects, which include not only commercially-available technologies fueled by commercial or strategic investment, but also concept demonstrations, pilots, and agile development activities that can incrementally improve commercial technologies or concepts for defense application.

Benefits of the CSO process and OTAs include:

- A streamlined application process requiring only minimal corporate and technical information
- Fast track evaluation timelines for solution briefs; with notification made, in most cases, within 30 calendar days of topic closure
- Negotiable payment terms
- Capital is non-dilutive
- All intellectual property (IP) rights are negotiable and the Government does not plan to own any IP
- Direct feedback from operators, customers and users within the DOD to help product teams develop and hone product design and functionality
- Potential follow-on funding for promising technologies and sponsorship of user test cases for prototypes and possible follow-on production.

SECTION 2 - DEFINITIONS

“Other Transaction for Prototype Projects” refers to this type of Other Transaction Agreement (OTA). This type of OTA is authorized by 10 U.S.C. 2371b for prototype projects directly relevant to enhancing the mission effectiveness of military personnel and the supporting platforms, systems, components, or materials proposed to be acquired or developed by the DOD, or for the improvement of platforms, systems, components, or materials in use by the armed forces. This type of OTA is treated by DOD as an acquisition instrument, commonly referred to as an “other transaction” for a prototype project or a Section 2371b “other transaction.” “Prototype” can generally be described as a physical or virtual model used to evaluate the technical or manufacturing feasibility or military utility.

“Nontraditional Defense Contractor” means as the term is defined in section 2302(9) of title 10, United States Code. With respect to applicable authority, means an entity that is not currently performing and has not performed, for at least the one-year period preceding the solicitation of sources by the Department of Defense for the procurement or transaction, any contract or subcontract for the Department of Defense that is subject to full coverage under the cost accounting standards prescribed pursuant to section 1502 of title 41 and the regulations implementing such section. This includes all small business concerns under the criteria and size standards in Title 13, Code of Federal Regulations, part 121 (13 CFR 121). “Innovative” means--

- (1) any new technology, process, or method, including research and development; or
- (2) any new application of an existing technology, process, or method.

SECTION 3 - GUIDELINES FOR PREPARATION AND SUBMISSION OF SOLUTION BRIEFS AND PROPOSALS

The purpose of the solution brief is to identify innovative solutions for the Department and preclude effort on the part of the Company whose proposed work is not of interest to the Government. Accordingly, Companies are encouraged to submit solution briefs following the instructions detailed below (Part A). While proposal instructions for any follow-on complete proposal are detailed below (Part B) the Government will provide specific proposal instructions in the invitation to submit a full proposal. An invitation from the Government Agreements Officer to submit a complete proposal, which includes a statement of work and a cost proposal, does not guarantee that the submitting organization will be awarded funding. Solution briefs should specifically identify the focused topic(s) category listed on the CSO website. Solution briefs can be submitted at any time during the open period of this CSO against any of the topic categories. This info will be posted on the DIUx website, diux.mil/workwithus. In general, companies will be notified within 30 calendar days after the topic area of interest has closed whether or not their solution brief is of interest at this time.

Guidelines for Solution Brief Submissions:

- 1) It is generally desired that active R&D is underway for concepts submitted under this CSO. Active R&D includes analytical studies and laboratory studies to physically validate the analytical predictions of separate elements of the technology, as well as software engineering and development.
- 2) The costs of preparing and submitting solution briefs are not considered an allowable direct charge to any contract or agreement.
- 3) Unnecessarily elaborate brochures or proposals are not desired.
- 4) Use of a diagram(s) or figure(s) to depict the essence of the proposed solution is strongly encouraged.
- 5) Multiple solution briefs addressing different topic areas may be submitted by the same organization; however, each solution brief may only address one concept based on the stated Government topic area of interest. Companies may submit solution briefs at any time during the 5-year announcement period.
- 6) The period of performance for any solution brief or proposal submitted under this CSO should generally be no greater than 24 months.
- 7) Technical data with military application may require appropriate approval, authorization, or license for lawful exportation.
- 8) All solution briefs shall be unclassified. Solution briefs containing data that is not to be disclosed to the public for any purpose or used by the Government except for evaluation purposes shall include the following sentences on the cover page:

“This solution brief includes data that shall not be disclosed outside the Government, except to non-Government personnel for evaluation purposes, and shall not be duplicated, used, or disclosed -- in whole or in part -- for any purpose other than to evaluate this submission. If, however, an agreement is awarded to this Company as a result of -- or in connection with -- the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent agreed upon by both parties in the resulting agreement. This restriction does not limit the Government’s right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]”

Each restricted data sheet should be marked as follows:

“Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.”

- 9) Foreign-Owned businesses may be a submitter alone or through some form of teaming arrangement with one or more United States-owned businesses. However, the

ability to obtain an agreement based upon a submission may depend upon the ability of the Foreign Owned business to obtain necessary clearances and approvals to obtain proscribed information.

10) Questions regarding the objectives or preparation of the solution brief should be addressed to CSOquestions@diux.mil.

11) Submissions must be submitted electronically via the DIUx website: diux.mil/workwithus.

SECTION 3 PART A: SOLUTION BRIEF PREPARATION (STEP 1 OF THE 2-PART CSO PROCESS)

The Solution Brief Preparation Step of this CSO is a two-phase process. In Phase 1, Submitter's solution brief shall not exceed five pages using 12-point font. Alternatively, solution briefs may take the form of slides, not to exceed fifteen. Any materials submitted in excess of these numbers will not be considered.

PHASE 1 SOLUTION BRIEF CONTENT

Title Page (does not count against page limit)

Company Name, Title, Date, Point of Contact Name, Email Address, Phone, and Address.

Executive Summary (one page)

Provide an executive summary of the technology.

Technology Concept

Describe the unique aspects of your technology and the proposed work as it relates to the topic area of interest. Identify whether the effort includes the pilot or demonstration of existing commercial technology (identified as commercially ready and viable technology), or the development of technology for potential defense application. If development or adaptation is proposed, identify a suggested path to mature the technology. Identify aspects which may be considered proprietary.

Company Viability

Provide a brief overview of the company. Provide a summary of current fundraising to date or a summary of the top line (gross sales/revenues). Provide a summary of product commercialization and go-to-market strategy.

PHASE 1 SOLUTION BRIEF BASIS OF EVALUATION

Individual solution briefs will be evaluated without regard to other submissions received under this announcement. The Government will aim to complete the Phase I evaluation of solution briefs within 30 calendar days of the closing of the submittal period and notify the Company of the status.

Phase 1 Solution briefs shall be evaluated on the basis of the technical merit of the proposed concept, i.e., the feasibility of the proposed solution to address the topic area of interest. The Government will further evaluate the relevancy of the proposed concept/technology/solution to the topic area of interest and the degree to which the proposed concept provides an innovative, unique and/or previously under-utilized capabilities. Finally, the Government will evaluate the strength of the company and business viability of the proposed solution. The Government may elect to use external market research in the evaluation of a company's viability.

Additional technical evaluation criteria specific to a particular project may be used. In these instances, the additional criteria will be posted with the topic area of interest on the DIUx website.

Upon review of a solution brief, the Government may elect to invite a company into Phase 2 of the Solution Brief Step. In Phase 2, Companies will be invited to pitch and/or demonstrate their technology in person or request additional information from the Company.

PHASE 2 SOLUTION BRIEF CONTENT

In Phase 2, information may be provided to the Government during the in-person pitch/demonstration and/or in a written submission. The pitch should provide more details on the technical and business viability of the proposed solution submitted in phase one. Regardless of format, the Phase 2 Solution Brief must also address:

Estimated Price/Schedule

Provide a rough order of magnitude price and notional schedule for how this concept could be tested within the DOD.

Defense Utility

Operational Impact – if known, describe how the DOD will be impacted by your technology. Explain the beneficial impacts and quantify them as appropriate. Detail who the operational users of the technology are expected to be or could be.

Prototype

State how this effort fits the CSO definition of a prototype, and which one of the following best applies for this prototype project:

- There is significant participation by a small business or nontraditional defense contractor; or
- At least one third of the total cost of the prototype project is to be paid out of funds provided by parties to the transaction other than the Federal Government.

Data Rights Assertions

The solution brief will identify any intellectual property involved in the effort and associated restrictions on the Government's use of that intellectual property.

In addition to these required areas, the Government may request the Company provide additional information/detail with respect to the Technology Concept information provided in the Phase 1 Solution Brief.

PHASE 2 SOLUTION BRIEF BASIS OF EVALUATION

Individual solution briefs will be evaluated without regard to other submissions received under this announcement. The Government will aim to complete review of Phase 2 solution briefs within 30 calendar days of the in-person pitch/demonstration and/or receipt of additional written information, whichever is later, and notify the Company if they are invited to submit a full proposal, if their concept proposal will be put into the Portal or if their technology is not of interest to the Government at this time.

Phase 2 Solution Briefs shall be evaluated on the following factors:

- 1) The proposed concept is directly relevant to enhancing DOD mission effectiveness
- 2) A rough order of magnitude (ROM) price is acceptable
- 3) A notional schedule is acceptable
- 4) There is significant nontraditional and/or small business participation, or the company is prepared to provide a 1/3 cost share (see definitions, section two)
- 5) The proposed concept qualifies as a prototype effort
- 6) The potential impact of data rights assertions

In addition to the above factors, if additional information is provided by the Company in its Phase 2 Solution Brief with respect to the areas evaluated in Phase 1 (Technical merit of the proposed concept, , the relevancy of the proposed concept to the topic area of interest, the degree to which the proposed concept provides innovative/unique and/or previously under-utilized capabilities, and the strength of the company and business viability of the proposed solution) the Phase 2 Evaluation will include these factors.

SECTION 3, PART B: PROPOSAL PREPARATION (STEP 2 OF THE 2-PART CSO PROCESS)

When invited to do so by the Government, a Company may develop and submit a full proposal. Companies may discuss ideas and details of the proposal during the proposal writing process with the Government. Each proposal submitted shall consist of two sections: Section 1 shall provide the technical proposal and Section 2 shall address the price/cost/schedule portions of the proposal.

Proposals containing data that is not to be disclosed to the public for any purpose or used by the Government except for evaluation purposes shall include the following sentences on the cover page:

“This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed -- in whole or in part -- for any purpose other than to evaluate this proposal. If, however, an agreement is awarded to this Company as a result of -- or in connection with -- the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent agreed upon by both parties in the resulting agreement. This restriction does not limit the Government’s right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets [insert numbers or other identification of sheets]”

Each restricted data sheet should be marked as follows:

“Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.”

Include documentation proving your ownership of or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) that will be utilized under your proposal for DIUx. If a patent application has been filed for an invention that your proposal utilizes, but the application has not yet been made publicly available and contains proprietary information, you may provide only the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and a summary of the patent title, together with either: (1) a representation that you own the invention, or (2) proof of possession of appropriate licensing rights in the invention.

Provide a good faith representation that you either own or possess appropriate licensing rights to all other intellectual property that will be utilized under your proposal for DIUx. Additionally, proposers shall provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research.

Section 1, Technical Proposal

Title Page

Company Name, Title, Point of Contact Name, Date, Email Address, Phone, and Address and any subcontractors or team members. Include an abstract which provides a concise description of the proposal.

Propose a Technical Approach

Describe the background and objectives of the proposed work, the approach, deliverables, and the resources needed to execute it. Include the nature and extent of the anticipated results. Include ancillary and operational issues such as certifications, algorithms, and any engineering/software development methodologies to be used. This proposal must include a Statement of Work (SOW) identifying the work to be performed and the deliverables. Provide a detailed project schedule that outlines the various phases of work to be accomplished within 24 months. You may refer to the solution brief that prompted this proposal request, but do not duplicate it.

Government Support Required

Identify the type of support, if any, the Company requests of the Government in general such as facilities, equipment, data, and information or materials.

Section 2, Price Proposal

The Company shall propose the total price to complete the prototype project and shall provide any other data or supporting information as the parties agree is necessary for the determination of a fair and reasonable price.

BASIS FOR PROPOSAL REVIEW

Proposals will be evaluated as they are received through a Government subject matter expert panel. Proprietary information will be protected from potential competitors. Proposals will be reviewed under the following criteria:

- 1) The degree to which the proposal is relevant to disruptive defense capabilities, including the degree to which it enhances and / or accelerates innovative development contributing toward third offset strategies.
- 2) Technical merit of the proposal with an emphasis on innovative solutions.
- 3) Realism and adequacy of the proposal performance schedule
- 4) Realism and reasonableness of the price

SECTION 4 - AWARDS

Upon favorable review and available funds, the Government may choose to make an award.

Awards will be fixed price and will be made using Other Transaction Agreements (OTAs). OTAs allow federal agencies to implement faster and streamlined methods and do not carry all the requirements of traditional Federal Acquisition Regulation-based procurement contracts. The Agreements Officer will negotiate directly with the Company on the terms and conditions of the OTA, including payments

To receive an award, one of the following must be present:

- Significant participation by non-traditional defense companies; or
- One-third cost share of the total agreed-upon price unless an exception under section 2371b(d)(1) applies.

To receive an award, Companies must have a Dunn and Bradstreet (DUNS) number and must register in the System for Award Management (SAM). This system verifies identity and ensures that payment is sent to the right party. In general, to invoice and receive payment after award of an OTA, Companies must register in Wide Area Work Flow. The Agreements Officer will provide assistance to those Companies from whom a full proposal is requested. The company must be considered a responsible party by the Agreements Officer, and is not suspended or debarred from such agreement by the Federal Government, and is not prohibited by Presidential Executive Order, or law from receiving such award.

Awards under this CSO will be made to proposers on the basis of the evaluation criteria listed above, and program balance to provide overall value to the Government.

COMPTROLLER GENERAL ACCESS TO INFORMATION

In projects that provide for payments in a total amount in excess of \$5,000,000, the agreement may include a clause that provides for the Comptroller General the ability to examine the records of any party to the agreement or any entity that participates in the performance of the agreement.

SECTION 5 - FOLLOW-ON WORK

Upon completion of the prototype project under the OTA, the Government and Company may agree to additional work. If this additional work logically follows from the original prototype project, the Government may request a new proposal from the Company. This proposal may be negotiated with the Agreements Officer without the need to submit a new solution brief.

SECTION 6 – NON-GOVERNMENT ADVISORS

1) Solution briefs - Non-Government advisors may be used in the evaluation of solution briefs and will have signed non-disclosure agreements (NDAs) with the Government. The Government understands that information provided in response to this

CSO is presented in confidence and may contain trade secret or commercial or financial information, and it agrees to protect such information from unauthorized disclosure to the maximum extent permitted or required by Law, to include-

- a. 18 USC 1905 (Trade Secrets Act);
- b. 18 USC 1831 et seq. (Economic Espionage Act);
- c. 5 USC 552(b)(4) (Freedom of Information Act);
- d. Executive Order 12600 (Pre-disclosure Notification Procedures for Confidential Commercial Information); and
- e. Any other statute, regulation, or requirement applicable to Government employees.

2) Proposals - Non-Government advisors may also be used in the evaluations of proposals. In these cases, Companies will be notified of the name and corporate affiliation of these advisors in the request from the Government to submit a full proposal. Companies will be afforded the opportunity to enter into a specific NDA with the corporate entity prior to submission of the proposal.

DIUx policy is to treat all submissions as source selection information, and to disclose their contents only for the purpose of evaluation. Restrictive notices notwithstanding, during the evaluation process, submissions may be handled by support contractors for administrative purposes and/or to assist with technical evaluation. All DIUx and DOD support contractors performing this role are expressly prohibited from performing DIUx-sponsored technical research and are bound by appropriate nondisclosure agreements.

Submissions will not be returned. The original of each submission received will be retained at DIUx and all other non-required copies destroyed. A certification of destruction may be requested, provided the formal request is received at this office within 5 days after notification that a proposal was not selected.

SECTION 8 – CONTACT INFORMATION

CSOquestions@diux.mil

Be advised, only an Agreements Officer has the authority to enter into a binding agreement on behalf of the Government. He or she will sign the agreement, and only an Agreements Officer has the authority to change the terms of the agreement.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

- 10 U.S.C. § 2371 (1999). Retrieved from <http://catalog.hathitrust.org/Record/007602212>
- Army Contracting Command–New Jersey. (2015). Other transaction overview. Retrieved from www.jpocbd.osd.mil/packs/DocHandler.ashx?docid=431
- Army Contracting Command–New Jersey (ACC-NJ). (2016). Army Contracting Command–New Jersey DIUx. U.S. Army. (2016). ACC-NJ contracting offices. Retrieved from <http://acc.army.mil/contractingcenters/acc-nj/services.html>
- Bertuca, T. (2016, July 27). Carter opens DIUx-Boston and reveals latest tech sector outreach efforts. Retrieved from <http://andwww.insidedefense.com/inside-pentagon/carter-opens-diux-boston-and-reveals-latest-tech-sector-outreach-efforts>
- Better Buying Power, Understanding and Leveraging Data ... (2013, January). Retrieved from <http://disa.mil/About/Legal-and-Regulatory/DataRights-IP/~media/Files/DISA/About/GC/BuyingPowertrifold.pdf>
- Carter, A. (2016). Remarks on opening DIUx East and announcing the Defense Innovation Board [Speech]. Retrieved from <http://www.defense.gov/News/Speeches/Speech-View/Article/858155/remarks-on-opening-diux-east-and-announcing-the-defense-innovation-board>
- Censer, M. (2016, August 25). Technology companies, industry groups caution DOD on technical data rights. Retrieved from <https://insidedefense.com/daily-news/technology-companies-industry-groups-caution-dod-technical-data-rights>
- Consortium for Command, Control and Communications in Cyberspace (C5). (2016). OTA. Retrieved from <http://c5technologies.org/ota>
- Consortium for Energy, Environment and Demilitarization (CEED). (2016). Consortium for Energy, Environment and Demilitarization (CEED). Retrieved from <http://ceed-ota.org/>
- Consortium for Energy, Environment and Demilitarization (CEED). (n.d.). *Better buying power delivered*. Retrieved from http://www.ceed-ota.org/sites/default/files/CEED_CutsheetFinal.pdf
- Defense Innovation Unit Experimental (n.d.). Rapid contracting. Retrieved from <https://www.diux.mil/workwithus/>
- Defense Innovation Unit (Experimental). (2016). *Commercial solutions opening (CSO)*. Retrieved from <https://www.diux.mil/docs/work-with-us/DIUx-Commercial-Solutions-Opening-White-Paper.pdf>

- Department of Defense (DOD). (2014, November 15). *Defense innovation initiative Memorandum*. Retrieved from <http://www.defense.gov/Portals/1/Documents/pubs/OSD013411-14.pdf>
- Department of Defense (DOD). (2015). *Defense Innovation Unit—Experimental (DIUx): Silicon Valley* [Fact sheet]. Retrieved from <http://clients.fifthtribe.com/diux-flat/docs/DIUxFactsheet.pdf>
- Department of Defense (DOD). (2016, March 2). *Statement by Pentagon Press Secretary Peter Cook on the establishment of the Defense Innovation Advisory Board* (Press Release No: NR-071-16). Retrieve from <http://www.defense.gov/News/News-Releases/News-Release-View/Article/684201/statement-by-pentagon-press-secretary-peter-cook-on-the-establishment-of-the-de>
- Department of the Navy. (2014, July). *Department of the Navy strategic sourcing program update*. Retrieved from <http://www.acq.osd.mil/dpap/ss/docs/Navy%20Strategic%20Sourcing%20Initiatives.pdf>
- Department of the Navy (DON). (2012, October). *Strategy for renewable energy*. Retrieved from <http://www.secnav.navy.mil/eie/Documents/DoNStrategyforRenewableEnergy.pdf>
- Erwin, S. I. (2012, October). *The War Over Intellectual Property: Who Owns U.S. Defense*. Retrieved from <http://www.nationaldefensemagazine.org/archive/2012/October/Pages/TheWarOverIntellectualPropertyWhoOwnsUSDefenseTechnology.aspx>
- Federal Acquisition Regulation (FAR), 48 C.F.R. ch. 1 (2016).
- Ferdinando, L. (2016, October 13). *DIUx Official: Working at “speed of business” to bring tech to warfighters*. *DOD News*. Retrieved from <http://www.defense.gov/News/Article/Article/973315/diux-official-working-at-speed-of-business-to-bring-tech-to-warfighters>
- General Services Administration (GSA). (n.d.). *Other Transaction Actions and Dollars Report*. Retrieved from https://www.fpds.gov/help/about_reports/help_Other_Transaction_Actions_and_Dollars_Report.html
- Government Accountability Office (GAO). (2016, January 8). *Federal acquisitions: Use of “other transaction” agreements limited and mostly for research and development activities* (GAO-16-209). Retrieved from <http://gao.gov/assets/680/674534.pdf>

- Greenwalt, W. C. (2014, October 10). 50 Legislative Ideas to Reform Defense Acquisition. Retrieved from <http://www.aei.org/wp-content/uploads/2015/01/Greenwalt-AEI-Legislative-Compendium.pdf>
- Halchin, L. E. (2011, July 15). *Other transaction (OT) authority*. (Congressional Research Service [CRS] Report RL34760). Retrieved from <http://digital.library.unt.edu/ark:/67531/metadc40241/>
- Harper, J. (2016, October 14). Defense Innovation Unit Announces Contracting Results. *Bloomberg Government*. Retrieved from <https://about.bgov.com/blog/defense-innovation-unit-announces-contracting-results/>
- Husband, D. M., & Nicholls, D. J. (2015, September 29). Eliminating Requirements Imposed on Industry Where Costs ... Retrieved November 3, 2016, from <http://www.acq.osd.mil/fo/docs/Eliminating-Requirements-Imposed-on-Industry-Study-Report-2015.pdf>
- McBride, C. (January 15, 2013). CEED memorandum. Retrieved from <http://www.ceed-ota.org/sites/default/files/Intro%20Letter%20%20Picatinny%20OTA.pdf>
- National Defense Authorization Act for Fiscal Year 2016, Pub. L. No. 114–92, 129 Stat. 726 (2015).
- National Security Technology Accelerator (NSTXL). (N.D.). *Delivering innovation to our national security*. Retrieved from email from NSTXL founder
- National Security Technology Accelerator (NSTXL). (2015). 2015 DOD Virtual Energy Summit. Retrieved from <http://www.acq.osd.mil/eie/Downloads/EAM/22%20Oct%20VES%20Presentation.pdf>
- National Security Technology Accelerator (NSTXL). (2016). What we do. Retrieved from <http://www.nstxl.org/>
- Obama, B. (2012). Remarks by president in State of the Union Address [Speech]. Retrieved from <https://www.whitehouse.gov/the-press-office/2012/01/24/remarks-president-state-union-address>
- Office of the Deputy Chief Management Officer of the Department of Defense. (2016, July 5). Defense Innovation Unit Experimental (DIUx) (DOD Directive 5105.85). Retrieved from <https://acc.dau.mil/CommunityBrowser.aspx?id=742197&lang=en-US>

- Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (OUSD[AT&L]). (2015, April 9). Implementation directive for Better Buying Power 3.0—Achieving dominant capabilities through technical excellence and innovation [Memorandum]. Retrieved from <http://bbp.dau.mil/docs/BBP3.0ImplementationGuidanceMemorandumforRelease.pdf>
- Paige, P. (2009, October 16). SECNAV Outlines Five “Ambitious” Energy Goals. Retrieved from http://www.navy.mil/submit/display.asp?story_id=49044
- Panel on Business Challenges Within the Defense Industry Releases Final Report on Doing Business with DOD. (2012, March 19). Retrieved from <https://armedservices.house.gov/news/press-releases/panel-business-challenges-within-defense-industry-releases-final-report-doing>
- Pellerin, C. (2016, July 26). Carter opens second DOD innovation hub in Boston. DOD News. Retrieved from <http://www.defense.gov/News/Article/Article/858413/carter-opens-second-dod-innovation-hub-in-boston>
- Pellerin, C. (2016, October 6). Defense Innovation Board Makes First DOD Interim Recommendations. Retrieved from <http://science.dodlive.mil/2016/10/06/defense-innovation-board-makes-first-dod-interim-recommendations/>
- Pomerleau, M. (2016, August 25). Selva: Innovators must be willing to be wrong. Retrieved from <http://www.c4isrnet.com/articles/dod-innovation>
- Reece, B. (2016, September 02). Pentagon’s top acquisition official talks innovation... Retrieved from <http://www.dla.mil/AboutDLA/News/NewsArticleView/Article/931893/pentagon-s-top-acquisition-official-talks-innovation-sustainment-with-defense-in/&p=DevEx,5084.1>
- Robinson, D. C. (2015, August 18). Part 2: The Rocky Relationship of SBIR with Venture Capital. Retrieved from <https://www.linkedin.com/pulse/part-2-rocky-relationship-sbir-venture-capital-david-c-robinson>
- Schwartz, M., Francis, K. A., & O’Connor, C. V. (2016, July 29). The Department of Defense Acquisition Workforce ... Retrieved from <http://www.fas.org/sgp/crs/natsec/R44578.pdf>
- Scott, D. (N.D.). *Prototype other transactions legal framework*. Retrieved from http://www.defenseinnovationmarketplace.mil/resources/Scott_OTALegalFrameworkSPECTRUM.pdf

Small Business Administration (SBA) Office of Investment and Innovation. (2014, February 24). Small Business Innovation Research (SBIR) program policy directive. Retrieved from https://www.sbir.gov/sites/default/files/sbir_pd_with_1-8-14_amendments_2-24-14.pdf

Under Secretary of Defense for Acquisition, Technology, and Logistics (USD[AT&L]). (2000, December 21). "Other transactions" (OT) guide for prototype projects. Retrieved from <http://www.darpa.mil/attachments/otguideDec15.pdf>

Williams, L. M., & Towell, P. (2016, February 12). *FY2017 defense budget request: In brief* (Congressional Research Service [CRS] Report R44379). Retrieved from <https://www.fas.org/sgp/crs/natsec/R44379.pdf>

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California