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**AN ANALYSIS OF THE
DEPARTMENT OF DEFENSE'S USE
OF OTHER TRANSACTION
AUTHORITY (10 U.S.C. 2371)**

June 2016

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**AN ANALYSIS OF THE DEPARTMENT OF DEFENSE'S USE OF OTHER
TRANSACTION AUTHORITY (10 U.S.C. 2371)**

Catherine L. Stevens, Civilian, Department of Defense

Submitted in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN CONTRACT MANAGEMENT

from the

**NAVAL POSTGRADUATE SCHOOL
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LIST OF ACRONYMS AND ABBREVIATIONS

ACQTAS	Acquisition Training Application System
AT&L	Acquisition Technology and Logistics
BAA	Broad Agency Announcement
BBP	Better Buying Power
CAS	Cost Accounting Standards
CECOM	Communication Electronics Command
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
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 Regulations
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
ISIL	Islamic State of Iraq and the Levant
ISIS	Islamic State of Iraq and Syria
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
OT	Other Transactions
OUSD	Office of the Under Secretary of Defense
R&D	Research and Development
R&E	Research and Engineering
RADM	Rear Admiral
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
TIPS©	Three Integrative Pillars of Success
TSA	Transportation Security Administration
USC	United States Code

USD

Under Secretary of Defense

USN

United States Navy

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EXECUTIVE SUMMARY

This research examines the evolution of Other Transaction (OT) authority, codified in Section 10 of the United States Code 2371, focusing on its use by the Department of Defense. The National Defense Authorization Act (NDAA) of 2016 made the OT authority for prototypes permanent; this development represents a significant milestone for OT authority. This research will provide an overview of where OTs belong among the standard procurement and assistance instruments available, review available literature on OT's, and provide findings and recommendations for use of the authority going forward.

The purpose of this research is to capture the current state of legislation with respect to OTs as well as understand how the statutory language has evolved since inception. The primary research questions focus on the current state of OT authority and what implications this has for the DOD going forward. The secondary research objectives focus on understanding the views of both advocates for and opposition against use of OT authority as well as understanding if there is a way to quantify the benefits achieved from use of OT authority. Finally, in light of the research, the questions of whether use of OT authority is in the best interest of the government as well as whether use of this authority should be expanded upon will be analyzed.

The methodology used in this project includes review of Government Accountability Office (GAO) audit reports, DOD Inspector General (IG) reports, and studies by the Congressional Research Service (CRS), research by the RAND institution, and Senate and House testimony. Other sources include newspaper, web, and journal articles. Also, interviews with three OT subject matter experts provides valuable insight into the creation of the original language, legislative changes to OT authority, and challenges going forward.

This research is important because the mission of the Department of Defense necessitates protection of our country from foreign and domestic threats. In order to remain at the forefront of innovation and technology, the DOD must attract the best

sources and capabilities in various fields of study. Given that the commercial industry now drives innovation as opposed to the government driving innovation, the government must change its thinking and practices to be in concert with that of the market. The government must remove impediments to commercial companies not wanting to do business with the government in furthering R&D efforts by thinking outside of the box. Other Transaction (OT) authority represents such a break from the traditional procurement system by allowing industry and the government to create flexible mission focused agreements that are not unduly burdened by the traditional Federal Acquisition Regulations (FAR) and the Defense Federal Acquisition Regulations (DFARS). OT agreements foster an atmosphere of trust and collaboration and has attracted non-traditional firms that possess tremendous capabilities in advancing technology.

The Three Integrative Pillars of Success (TIPS[®]) analytical framework model, authored by E. Cory Yoder, was used to analyze data on OTs in terms of personnel, platforms, and protocols. This research has revealed that although OT authority has become permanent, there remain several challenges to the successful execution of this authority. First, although agencies have been using OT authority, this represents a significant change in culture from traditional contracting processes, procedures, and regulations. Changing culture to provide greater awareness and acceptance of OT authority remains an area of opportunity. This research also revealed that there is very little training and guidance on OT authority. Further, there are very few experts within the federal government who are well versed in executing OT agreements. Research has also revealed that advertising has been a major challenge in promoting OT authority as dedicated platforms do not exist solely to advertise potential OT opportunities. Research has indicated that there are advantages and disadvantages to OT authority; unfortunately, while proponents advocate benefits, there is no magic formula for quantifying the benefits of OT agreements.

In conclusion, OT authority, when used for the advancement of research and development, provides a powerful tool to attract non-traditional companies who previously were averse to working with the government. OT authority provides an avenue for government and industry to partner towards advancement of state-of-the-art

technologies that will have and will continue to make a tremendous impact to the war fighter and national security.

Now that the authority is permanent, it is time to execute and use the authority to the maximum extent possible to further R&D efforts. Recommendations include updating training materials to better equip Contracting Officers with an understanding of OT authority and how to craft effective OT agreements. Another recommendation would be to create a dedicated platform for advertising OT opportunities in order to attract a greater number of companies that possess the capabilities that the government desires. It is also imperative that the government think about succession planning and to have a knowledge management system in place to capture the resident knowledge from subject matter experts. It would be worthwhile to champion a working group that could capture lessons learned and best practices from executed OT agreements. A dedicated working group could also decide on how to best quantify tangible and intangible benefits of OT agreements. It is only through sharing these success stories that greater acceptance of OT authority will become part of the larger, overall federal acquisition culture.

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I. INTRODUCTION

This chapter provides a brief introduction to Other Transaction (OT) authority through an examination where OT agreements belong in comparison to traditional procurement contracts, grants, and cooperative agreements. This chapter also addresses the different types of OTs. The research objectives, specifically examining the primary and secondary questions that guide the research will be reviewed. Finally, this chapter will review the benefits of this research as well as the research methodology and the report organization.

A. OTHER TRANSACTION “UN”DEFINED

As stated in the article, “Another Option in a Tightening Budget: A Primer on Department of Defense ‘Other Transactions’ Agreements,” “Nowhere in the statute or the implementing regulations is there a definition of ‘other transactions’” (Cassidy, Plitsch, & Barclay, 2013). The authors are correct. Upon examination of Section 10 of U.S.C 2371, one will not find an affirmative definition of OTs. Rather, OTs are generally defined by what they are not. L. Elaine Halchin, in a CRS report, concurs with this characterization stating, “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” (Halchin, 2011).

According to the GAO/NSIAD-96-11 report, “Contracts are to be used when the principal purpose of the project is the acquisition of goods and services for the direct benefit of the Federal Government. In contrast, grants, cooperative agreements, and other transactions are assistance instruments used by DOD when the principal purpose is to stimulate or support research and development efforts for more public purposes” (United States General Accounting Office, 1996). In an updated GAO report, OTs are categorized separately from procurement contracts, grants, and cooperative agreements. The report states that “...Congress established ‘other transaction authority’ for certain agencies through separate legislation. Under these authorities, agencies may develop agreements that are not required to follow a standard format or include terms and conditions that are

typically required when using traditional mechanisms” (United States Government Accountability Office, 2016). Figure 1 illustrates that OT authority falls in both the acquisition and non-acquisition sides in terms of meeting contracting mission objectives. The authority granted by 10 U.S.C. 2371b refers to “OT authority for prototypes,” which falls more on the acquisition side but is not considered a procurement contract and is therefore, not subject to the Federal Acquisition Regulations (FAR). 10 U.S.C. 2371 is also considered an OT authority on the non-acquisition side of the contracting tool box through “OT authority for R&D” and “OT for other” arrangements.

Acquisition		Non-Acquisition				
Procurement Contracts	Non-FAR Contracts	Grants	Cooperative Agreements		OTs	
10 U.S.C. 2304 31 U.S.C. 6303 ↓ Federal Acquisition Regulation	*Non-appropriated funds contracts	10 U.S.C. 2358	10 U.S.C. 2358	Technology Investment Agreements (TIAs)		Other 10 U.S.C. 2371
	*10 U.S.C. 2371b	31 U.S.C. 6304	31 U.S.C. 6305	10 U.S.C. 2358	10 U.S.C. 2371 (a) & (d)	
	*NASA Space Act		Traditional	Flexible	Multi-Party Commercial Firm Consortia	New/Unique Arrangements
	Exception to FAR, Bayh-Dole Act	OMB Circ. DODGARs	OMB Circ. DODGARs	Recoupment Authority 10 U.S.C. 2371(d)	Recoupment Authority 10 U.S.C. 2371(d)	Bailments Lease Arrangement
PART 15 Cost/Price Based		Bayh-Dole Act	Bayh-Dole Act Lore	DDRE Letter Bayh-Dole Act	DDRE Letter Exception to Bayh-Dole	Loan-to-Own
PART 12 Commercial Items Price Based						

Figure 1. Contracting Tool Box. Source: DARPA (2015)

B. TYPES OF OTHER TRANSACTIONS

As illustrated in Figure 1, the OT authority derived from 10 U.S.C. 2371 falls into three main categories: OT for research, OT for prototypes, and OT for other.

1. Research

The initial OT authority was primarily intended to advance research and development. As stated in GAO-16-209, “Agencies may use other transaction agreements for a variety of projects and activities. For example, agencies can use other transaction agreements for research, development, and demonstration (RD&D) projects and activities that help advance new technologies or processes” (United States Government Accountability Office, 2016). “These transactions now take the form of technology investment agreements (TIAs). DOD will use a TIA when it wants to encourage the development of new technologies for future defense needs with entities that might not otherwise work with the DOD” (Cassidy, Plitsch, & Barclay, 2013). The following quote, sourced by the authors from the DARPA website on Other Transactions, captures the underlying intent of OTs for research/TIAs:

TIAs therefore are designed to reduce barriers to commercial firms’ participation in defense research, to give the [DOD] access to the broadest possible technology and industrial base; promote new relationships among performers in both the defense and commercial sectors of that technology and industrial base; and stimulate performers to develop, use, and disseminate improved practices. (Cassidy, Plitsch, & Barclay, 2013)

As will be discussed in later chapters, OT arrangements for research are exempt from many of the traditional procurement laws and regulations, thus becoming an attractive arrangement for commercial entities previously not inclined to do business with the government. To really understand the difference between OT for research and OT for prototypes, you could ask what the overarching goal is - If it is more to advance innovation or an idea, in other words, making an investment in technology, it would be considered OT for Research. If the ultimate goal was to get a working prototype, then it would be considered OT for prototypes.

2. Prototype

In their article, “Another Option in a Tightening Budget: A Primer on Department of Defense ‘Other Transactions’ Agreements,” the authors succinctly sum up the OT for Prototype legislation from the NDAA for 1994, stating “Congress authorized a second type of OT agreement for DARPA in 1993, under the notes to section 845 of the National Defense Authorization Act for Fiscal Year 1994. This second type of agreement was intended for prototype projects related to DOD’s acquisition of weapons or weapon systems” (Cassidy, Plitsch, & Barclay, 2013). As will be illustrated in Chapter II, the OT for prototype legislation has really been the OT authority area that has changed dramatically over the years. For example, the definition of “weapons or weapons systems” as stated above now has a broader definition. Through an interview with Mr. Scott Ulrey, Deputy Director, DARPA CMO (personal communications, May 23, 2016), it was revealed that OT for Prototypes authority has colloquially been referred to as “845s” although changes to the original authority appear in many different sections (e.g., Sections 804, 241, 801, etc.) of the public law.

3. Other Types

Finally, the third type of OT arrangement is essentially an OT agreement for anything other than for RD&D or prototypes. This is a catch all category which leaves the authority available for the government to enter into agreements that have yet to be encountered. As illustrated in Figure 1, this could include arrangements such as bailments, lease arrangements, loan-to-own, and other unique agreements. Mr. Scott Ulrey (personal communications, May 23, 2016) explained that:

For OTs for research, which generally results in a TIA, those agreements are generally for dual use technologies and in order to do a TIA, there is a requirement of participation by a for-profit organization. When working with universities, the tendency is to enter into grants. However, one scenario using ‘OT for Other’ could be entering into an agreement with a consortia of universities. One could also have an OT for other agreement with a group consisting on non-profit organizations. You could have joint solicitations with industry. You could lease out R&D equipment. You could loan out government property and eventually, the company would own that property depending on the terms stated in the agreement.

Another example would be technology development programs with foreign governments. Foreign governments have approached the government in response to a Broad Agency Announcement (BAA) because they have a great technology and want to enter into an agreement. A foreign government is not a for-profit entity and cannot enter into a traditional procurement contract, grant, or cooperative agreement; therefore, an OT for other arrangement would be a possible solution.

OT for Other is a category that really allows for the greatest of flexibility and is available when the OT for research and OT for prototype agreements are not applicable.

C. RESEARCH OBJECTIVES AND QUESTIONS

The primary objective of this research is to present the reader with an in-depth understanding of OT authority by first examining the history of OTs and then presenting a thorough analysis of the current state of OT legislation. To accomplish the primary objective, the questions of what is the current state of OT authority and what does the law say and what implications this has will be answered.

The secondary objective of this research is to take a holistic view of all available literature on OT authority in order to determine if the current language is sufficient as stated or if additional changes are needed. To accomplish the secondary objective, the questions of if the benefits can be quantified, do the benefits outweigh the risks, and should other agencies use this authority will be analyzed. The question of what is the way forward with OT authority will be examined and recommendations will be provided.

D. PURPOSE/BENEFIT

According to the DOD website, “The mission of the Department of Defense is to provide the military forces needed to deter war and to protect the security of our country.” (About the Department of Defense, n.d.). The mission of the DOD is in line with the goals of the National Security Strategy (NSS). As stated by President Obama in the 2015 NSS, “Any successful strategy to ensure the safety of the American people and advance our national security interests must begin with an undeniable truth—America must lead” (Obama, 2015). This research is important because for America to lead and for the DOD to provide our military forces with the resources to deter war, we need to

continue to advance innovation and state of the art through a focus on R&D efforts. OT authority provides a mechanism for DOD to leverage the capabilities of commercial companies, who are the current trailblazers in many fields of study. The DOD does not have the resources or the internal capabilities to remain on the forefront of technology; therefore, DOD must work in concert with the commercial companies that are driving innovation and state-of-the-art advances in technology. This research provides a greater understanding of an authority that has and will continue to provide meaningful impacts for our warfighter and for our nation.

E. SCOPE/METHODOLOGY

Fortunately, there exists numerous source materials on the subject of OTs. The challenge is ensuring a comprehensive review of all credible sources in order to provide a balanced factual representation of the many different facets of OTs. Over thirty sources were researched in preparation for this project. The DOD IG has issued several audit reports which review the award and administration of OTs as well as the financial and cost aspects of OTs. The GAO has issued a couple reports that present a comprehensive history and overview of OTs. RAND conducted extensive research on OTs which included examination of “72 projects during the 1994–1998 time period” (Smith, Drezner, & Lachow, n.d.) and resulted in several findings. The CRS also conducted its own research which resulted in a concise report on OTs that provided a detailed overview of the history of OTs as well as an analysis on the use of OTs and resulting policy recommendations. In addition to the aforementioned sources, research was garnered from journal articles, congressional testimony, industry briefings, and personal interviews. Overall, the tone of the research materials on OT authority was generally positive, citing its usefulness in attracting commercial capabilities; however, there were a few sources that were not as positive, warning of potential risks of using OT authority. This projects attempts to reconcile the literature available on OTs to provide the reader an understanding of the evolution of this authority from the past through the most recent changes implemented by the 2016 National Defense Authorization Act. This research will present views from both advocates for and opponents against OT authority. The most meaningful insights were gathered from personal interviews with OT subject matter

experts who were involved with the initial crafting of the statutory language as well as from DARPA contracting officials who have been advocates for use of OT authority.

This project will use The Three Integrative Pillars of Success (TIPS[®]) analytical framework model, authored by E. Cory Yoder, to analyze data on OTs in terms of personnel, platforms, and protocols. The premise of the TIPS[®] model is that the “three pillars MUST be examined for operational success.” A successful organization must be grounded in authorization and appropriation and Yoder states that “Nothing gets accomplished without the funds to structure and execute pillars” (Yoder, 2016). When an organization has the requisite authorization and appropriation and the three pillars of personnel, platforms, and protocols are operating in harmony, an organization is operating efficiently. This project will examine OT with respect to the three pillars to determine if improvements or recommendations can be made on DOD’s use of OT authority going forward.

F. REPORT ORGANIZATION

This chapter, Chapter I, provided a brief overview of Other Transactions by reviewing how OT is defined and what types of OTs exist. Chapter I also defined the research objectives of this project. Chapter II provides a literature review and history of OTs which includes an overview of the environmental and market factors that contributed to the DOD receiving OT authority and what factors led to the OT for prototype authority being made permanent. Chapter III takes an in-depth look at the statutory changes effected by the 2016 National Defense Authorization Act and also examines applicable laws, socioeconomic considerations, and legal implications of OT agreements. Chapter IV provides an analysis of the available OT data through the lens of the Three Integrative Pillars of Success analytical framework authored by E. Cory Yoder. Chapter IV will presents findings in terms of personnel, platforms, and protocols and will also review the advantages/benefits, disadvantages/risks, and lessons learned with respect to OT authority. Finally, Chapter V will present research conclusions and recommendations for possible implementation.

G. SUMMARY

In summary, this chapter provided an understanding of what an OT is not and discussed the various type of OT arrangements authorized under 10 U.S.C. 2371. This chapter also defined the project objectives, scope/methodology, and report organization. Most importantly, this chapter discussed why this research is critical as it is in support of continuing to advance state-of-the-art innovation and technology in ultimate support of our warfighter in defense of our great nation.

II. LITERATURE REVIEW AND HISTORY OF OT

The previous chapter provided a brief overview of OT authority and defined the research objectives. This chapter examines the environmental and market factors which set the stage for the DOD to obtain Other Transaction (OT) authority and which also contributed towards the OT for prototype authority to be made permanent. This chapter also reviews DOD's history with OT authority and will also briefly review other agencies that were granted OT authority.

A. ENVIRONMENTAL AND MARKET FACTORS

There were several environment and market factors which paved the way for the DOD to gain OT authority. The Space Agreement Act and the advent of the National Aeronautics and Space Administration (NASA) planted the seeds of "Other Transactions" as alternative agreements to the traditional procurement contract, grant, and cooperative agreement that were traditionally used to accomplish mission objectives. Changes in the Science and Technology (S&T) community combined with the commercial market's aversion to doing business with the government also forced Department leaders to think outside the box for a solution that would foster collaboration with the commercial market. Finally, a continuing focus on acquisition reform further helped to shape an environment that would be conducive to creation of an alternative authority.

1. NASA and the National Aeronautics and Space Act of 1958

Surya Gablin Gunasekara (2011), author of "Other Transaction Authority: NASA's Dynamic Acquisition Instrument for the Commercialization of Manned Spaceflight or Cold War Relic?" quotes from 42 U.S.C. § 2473(c) (5) that "The Space Act provides NASA with the authority to 'enter into and perform such contracts, leases, cooperative agreements, or **other transactions** as may be necessary in the conduct' of NASA's mission or as the agency may deem appropriate." Gunasekara describes the competitive environment between the United States and Russia with respect to space exploration. In her article, Gunasekara (2011) quotes the following passage from Paul

Dembling's "The National Aeronautics and Space Act of 1958: Revisited" stating, "On October 4, 1957, the Soviet Union successfully launched Sputnik into orbit and for the first time, the United States realized that it was behind in the space race. There was a sense of surprise and 'bitter disappointment' in the U.S. space community." This sense of being technologically behind did not sit well with the U.S. and consequently, NASA was born and was afforded wide latitude to accomplish its mission.

In "Injecting New Ideas and New Approaches in Defense Systems - Are 'Other Transactions' An Answer?," author Richard L. Dunn (2009) provides further insight as to how NASA interpreted this unique authority and gives an example of NASA collaborating with AT&T:

In addition to utilizing the basic contracting laws, NASA used this alternative authority selectively to enter into a variety of innovative contractual relationships with the interpretation that the contracting laws did not apply to "other transactions" (usually referred to as "Space Act agreements"). The first active communications satellite was actually privately owned and developed at no expense to NASA, which launched the satellite on a reimbursable basis for AT&T. The technical reports on Telstar that the author delivered to NASA looked exactly like technical reports delivered under a government procurement contract. The relationship between NASA and AT&T became a model for a class of "other transactions" called launch service agreements. Over the years, NASA has found many applications for "other transactions" structured as funded, unfunded or reimbursable arrangements.

Several sources credit the National Aeronautics and Space Act of 1958 as being the originating source of "other transaction" authority. As you will see later in this chapter, thanks to the pioneers at NASA, there are now numerous other agencies that have been granted OT authority.

2. Changes in the Science and Technology Market

Ms. Halchin, author of a Congressional Research Service (CRS) report titled "Other Transaction (OT) Authority," quotes a passage from Ms. Diane Sidebottom's article titled "Intellectual Property in Federal Government Contracts: the Past, the Present, and One Possible Future," that truly captures the changes that were taking place in the Science and Technology community:

Elaborating on how the government's circumstances have changed, Diane M. Sidebottom wrote the following: [In the past,] ... the Government was a large customer of ... complex technologies and was often the only customer for production quantities of some of the more expensive inventions. While Government still has deep pockets, these pockets are nowhere near as deep as they were in the past. Massive budget cutbacks across the board have put the Government in the interesting position of being just another customer of technology and often not the largest customer at that. More and more, the Government is relying on commercial off-the-shelf technologies and leveraging the investment in technology that is being made privately by commercial industry. The situation has changed so much that many corporations are refusing to do business with the Government because its regulatory rules are too onerous. The Government is finding that not only can it not acquire many of the technologies it needs, but also many corporations will not even accept government dollars to help develop new technologies.

In a brief at a DARPA business conference, Mr. Scott Ulrey (2016b) also described the changes in the S&T community as being a major driver that bolstered the push for the OT for prototype authority to be made permanent. Mr. Ulrey accurately explains that “In the past, innovation was fueled by the government while now, innovation is fueled by the commercial market.” He also states that “In the past, DOD was the primary driver of technology innovation by making substantial investments in R&D in the defense industrial base. In the present, the focus and pace of S&T innovation and its environment in leading technology areas shifted from government to the commercial sector.” Finally, Mr. Ulrey (2016b) states that “In the past, DOD powered a technology advantage on the battlefield with its investments in R&D while in the present, DOD works with the commercial sector to maintain a technology advantage on the battlefield.” The shift of the dynamics in the S&T community as described by Ms. Sidebottom and Mr. Ulrey was a significant consideration that caused DOD leadership to advocate for an authority that would allow the government to more easily work with the commercial market.

3. Commercial Firms Averse to Working with the Government

Commercial firms are wary of working with the federal government for a host of reasons, but the literature suggests that the main sources of contention revolve around

guarding intellectual property, the requirement to comply with regulations such as the FAR and DFARS, and the requirements of complying with FAR Part 31 and cost accounting standards.

a. Intellectual Property

Mr. Richard Kuyath (1998) stated in his article “Intellectual Property Rights under Department of Defense ‘Other Transactions’” that “The rigid and complex statutes and regulations governing Government Intellectual Property (IP) rights under procurement contracts, grants, and cooperative agreements prevent some commercial companies from performing Government-funded R&D projects.” IP represents a company’s unique ideas and innovations and is an integral part of their identity. It is natural for companies to want to protect their intellectual property rights. Frank Kendall (2016), Under Secretary of Defense for Acquisition, Technology, and Logistics (USD/AT&L), recognizes this fact and states in “Our Theme for 2016 – Sustaining Momentum”:

It’s perfectly legitimate for a company to expect a reasonable return on the intellectual property it has developed or acquired. In general, that return should be in the commercial advantage conveyed by superior technology or lower costs. On the other hand, the use of intellectual property by a firm to sustain a decades-long grip on the aftermarket for a product is something the DOD should and can work to prevent.

The passage of the Bayh-Dole Act played a significant role in deterring R&D participation by commercial firms. As stated in “Another Option in a Tightening Budget: A Primer on Department of Defense ‘Other Transactions’ Agreements”:

In 1980, Congress passed the Bayh-Dole Act, which created a uniform patent policy for inventions resulting from federally sponsored research and development agreements. The Act was initially applicable to small businesses, universities, and other nonprofit organizations and gave them the right to retain title to and profit from their inventions if they met certain requirements. The government retained a nonexclusive, nontransferable, irrevocable, paid-up (royalty-free) license to use the invention. On February 18, 1983, President Ronald Reagan issued a presidential memorandum that extended the patent policy of Bayh-Dole to any invention made in the performance of federally funded research and development contracts, grants, and cooperative agreements to the extent

permitted by law. On April 10, 1987, President Reagan issued Executive Order 12591, which directed federal agencies to extend the Bayh Dole policies to “all businesses.” (Cassidy, Plitsch, & Barclay, 2013)

The Bayh-Dole Act continued to grow in scope and sphere of influence and as one can imagine, giving up these rights to the government was not appealing to firms in the commercial marketplace. One of the reasons that OT agreements are viewed positively by industry has to do with the flexibility of these agreements in negotiating favorable IP terms. Mr. Kuyath (1998) speaks to the benefits of OT arrangements with respect to IP rights:

In conclusion, OTs offer tremendous flexibility to the parties to negotiate intellectual property rights that not only satisfy the Government’s minimum needs but also grant sufficient rights to encourage contractors to commercialize the technology developed under the OT. This flexibility enables DOD to attract more firms to perform Government-funded R&D, particularly those commercial firms that, in the past, have been unwilling to perform Government-funded R&D.

b. Regulations

Another impediment to the commercial market working with the government to advance R&D has to do with an aversion to the overly burdensome regulations known as the FAR and DFARS. The FAR and DFARS are the body of regulations which govern traditional government acquisition. There are hundreds of clauses which may end up in a procurement contract and the number and type depend upon a variety of factors. There are different clauses for commercial versus non-commercial contracts. There are nuances in clause selection dependent upon dollar value and contract type. The clauses prescribed by the FAR and DFARS were intended to be safeguards; however, over time, the system has resulted in producing an overabundance of clauses and a perception of complexity. In his article, “Measuring ‘Other Transaction’ Authority Performance Versus Traditional Contracting Performance: A Missing Link to Further Acquisition Reform,” Major Gregory J. Fike (2009) states “Special emphasis is placed on a 1994 DOD procurement cost study conducted by Coopers and Lybrand in association with The Analytic Sciences Corporation, Inc. (TASC), which estimated that on average DOD specific acquisition regulations cause an eighteen percent cost increase in DOD acquisition programs.” The

Coopers and Lybrand study was an eye opening study in an era of acquisition reform as it was one of the first studies which quantified the cost of these regulations.

c. Cost Accounting System

Another impediment to commercial firms working with the federal government involves the requirements of having to adhere to principles of FAR 31 and having an adequate cost accounting system. Author Gregory Fike (2009) states that “A 1992 congressional study found that “[the] Defense Department provisions requiring compliance with the Government Cost Accounting Standards and the Truth in Negotiations Act are serious impediments to commercial companies wishing to sell to the department.”

This assertion is also supported in GAO-16-209 which states “We previously reported that nontraditional contractors generally do not operate accounting systems in compliance with cost accounting standards, and that developing such systems can be cost-prohibitive, according to entities and outside procurement experts” (United States Government Accountability Office, 2016). The report also states that “When agencies use other transaction agreements, however, agencies do not have to require entities to meet government cost accounting standards and do not require entities to use accounting systems that adhere to these standards” (United States Government Accountability Office, 2016). GAO-16-209 also provides a specific example of how an OT agreement can alleviate a company’s concerns about cost accounting standards:

DOE officials cited an example in which they used an other transaction agreement to address a company’s concerns regarding government cost accounting standards. DOE entered into an other transaction agreement in 2008, which is expected to continue through 2017, with a company that had not previously worked with the government. The agreement was for the design, construction, and operation of a bio refinery plant capable of producing large amounts of ethanol. According to DOE officials, the company brought needed expertise to the project but had not previously worked with the government and did not have a government-approved cost accounting system. DOE used the flexibility of its other transaction authority to create an agreement whereby the company was not required to adhere to government cost accounting standards or use a government-approved cost accounting system. However, the agreement did include

some requirements for the company's cost accounting system. (United States Government Accountability Office, 2016)

Having to adhere to the Government's cost accounting standards is a real concern for many companies that are not used to doing business with the government. OT authority has provided a means to address this concern with many companies being allowed to adhere to Generally Accepted Accounting Principles (GAAP) instead of the government's cost accounting standards.

4. Acquisition Reform

Along with changes in the S&T community, there was also a strong push for acquisition reform in the late 1980s and throughout the 1990s. Although acquisition reform continues today through Better Buying Power (BBP) initiatives, the 1990s was really the height of reform efforts, which saw the creation of legislation such as the Federal Acquisition Reform Act (FARA) and the Federal Acquisition Streamlining Act (FASA). FARA and FASA were examples of procurement reform legislation that focused on commercial item acquisition, promoted performance based contracting, and aimed to streamline the acquisition process. Describing the sentiment at the time, quoting from a GAO Report and RAND research study, Mr. Fike (2009) states:

Congress and DOD were concerned that government unique procurement requirements required by the FAR 'inhibited DOD's ability to take advantage of technological advances made by the private sector and increased the costs of goods and services DOD acquired.' Many of the studies conducted in the early 1990s revealed that contractor compliance with government unique acquisition provisions imposed a significant "cost premium" on government-procured items. The results of the studies indicated that government regulation increased the costs of DOD contracts anywhere from 5% to 200%.

The studies referenced in the above quotation provided ammunition for acquisition reformists to push for authorities and legislation that would make the acquisition process more efficient. The environment of acquisition reform would prove conducive for the DOD to eventually gain OT authority, an authority which represented a departure from traditional government procurement processes and procedures.

Acquisition reform continues to remain a focus of present day DOD policy makers. Initiatives such as BBP, authored by Ashton Carter and Frank Kendall, has been published as versions 1.0, 2.0, and most recently 3.0. Rear Admiral (RADM) Allie Coetzee (2015) of the United States Navy (USN) stated in “Reward Industry for Innovative Outcomes” that:

The overarching theme of Better Buying Power (BBP) 3.0 is achieving dominant capabilities through technical excellence and innovation. To help achieve these goals, the Department of Defense (DOD) is reexamining business arrangements, so we can: (1) attract and enable a broader array of industry participants; (2) employ techniques that will motivate industry to deliver tangible results that advance combat capabilities; and (3) recognize that deliberate speed is required to stay ahead and remain on the cutting edge.

In “Our Theme for 2016 – Sustaining Momentum,” Frank Kendall (2016) stated “My concerns about technological superiority that motivated this edition of BBP are reinforced every time I receive a daily intelligence update.” The continuing focus on acquisition reform has certainly been a favorable factor in producing an environment conducive to DOD being granted permanent OT authority.

B. DOD OT AUTHORITY AND LEGISLATIVE CHANGES

1. Fiscal Year 1990: DARPA Receives OT Authority

In light of the changes transpiring in the S&T community combined with the environment of acquisition reform and the need to accomplish its mission, through the efforts of Mr. Richard Dunn (personal communications, May 31, 2016), then General Counsel at DARPA, in concert with the support of then Senator Nunn of the Senate Armed Services Committee, DARPA called for creation of an authority that would allow flexibility not afforded by traditional means. DARPA was ultimately successful in this endeavor and as stated by Mr. Dunn, “In 1989, the Defense Advanced Research Projects Agency (DARPA) sought and received authority to enter into ‘other transactions’ (OTs) to support basic, applied and advanced research. This authority could be used when standard procurement contracts and grants were not feasible or appropriate” (Dunn, *Injecting New Ideas and New Approaches in Defense Systems - Are “Other*

Transactions” An Answer?, 2009). The original authority, codified in 10 U.S.C 2371, appeared in Section 251 of Public Law 101-189, and was a permanent authority promoting “dual use “ technology, meaning promoting investments in research that could have both a commercial and military application. In Fiscal Year 1990, there was no specific authority for prototyping; however, per Mr. Scott Ulrey (2016b), the law specifically didn’t exclude prototyping.

2. DARPA’s Interpretation of OT Authority

In March 1992, Mr. Dunn, General Counsel for the Defense Advanced Research Projects Agency (DARPA) crafted a memorandum for the Director of DARPA in preparation for the Director’s upcoming testimony in front of the Defense Industry and Technology Subcommittee of the Senate Armed Services Committee. This memorandum provides insight into DARPA’s interpretation of OT authority at the time. In the memorandum, Mr. Dunn states “DARPA’s view of its authority to enter into nonprocurement agreements has been that it merely adds flexibility in the way we carry out our traditional mission. We utilize procurement contracts, grants, or other nonprocurement agreements in accordance with law as circumstances warrant” (Dunn, Agreements Authority and Key Defense Acquisition Strategies, 1992).

3. Fiscal Year 1994: DARPA Receives Specific OT for Prototypes Authority

According to an interview with Mr. Ulrey (personal communications, May 23, 2016), in Fiscal Year 1994, due to the concern that the law didn’t specifically cover major or rapid prototyping, some felt the need for specific language to be crafted, enacted, and authorized in order for the government to legitimately use OT authority to branch out into major prototyping. Mr. Ulrey elaborated that Section 845 of Public Law 103-160 gave “DARPA-specific OT authority for prototype development up to the point of production.” This was a temporary authority subject to a three year sunset provision (Ulrey, 2016).

4. Historical Changes to OT for Prototype Authority

Over the past 20 years, the 845 OT for prototypes legislation has changed dramatically from its initial creation. The original 2371 language hasn't changed much; therefore, the focus in this section will be on the changes to the 845 legislation, which have been succinctly summarized in Mr. Scott Ulrey's presentation on "Other Transactions for Prototypes" given at the DARPA business conference. Following the issuance of OT authority for prototypes to DARPA in FY 1994, this same "authority was expanded to the military services and Secretary of Defense designated officials" and the "temporary authority was extended with another three year sunset provision" through execution of Section 804 of Public Law 104-201. In Section 241 of Public Law 105-261, Fiscal Year 1999 again saw the "temporary authority extended with a two year sunset provision." In Fiscal Year 2000, Section 801 of Public Law 106-65 added a "Comptroller General Review" (Ulrey, 2016).

a. Fiscal Year 2001: Non-Traditional Defense Contractor

In FY 2001, Sections 803 and 804 of Public Law 106-398 added "the concept of a 'non-traditional' defense contractor." If a company was a traditional defense contractor, then there would be a 1/3 cost share requirement. The FY 2001 changes enacted another extension of the temporary authority and included another three year sunset provision. In Section 822 of Public Law 107-107 for FY 2001, there was another interesting development in that the law "allowed for follow-on production contracts only for a specified number of units at a specific target price" (Ulrey, 2016). However, as will be reviewed in the next chapter, this particular legislation was not optimally thought out or crafted and was eventually changed with the 2016 NDAA.

b. Fiscal Year 2004: Expanding Definition of "Weapons System"

In Fiscal Year 2004, Section 847 of Public Law 108-136 "expanded the definition of weapons system" and introduced a "pilot program to allow for follow-on contracting for the production of commercial items" (Ulrey, 2016). Once again, the temporary authority was extended, this time with a four year sunset provision.

c. Fiscal Years 2006, 2009, 2011, and 2013: Sunset Extensions and Review Thresholds

In FY 2006, Section 823 of Public Law 109-163 added “dollar-value threshold review levels” and made the “Procurement Integrity Act now applicable to OTs” (Ulrey, 2016). In Section 824 of Public Law 110-417, FY 2009 “expanded the scope of the pilot program” and the “temporary authority was extended with a five year sunset provision.” In FY 2011, Section 826 of Public Law 111-383 included “all options in dollar-value threshold review levels.” In FY 2013, Section 863 of Public Law 112-239 again “extended the temporary authority and had another five year sunset provision” (Ulrey, 2016).

d. Fiscal Year 2015: Further Expansion of Definition of “Weapons or Weapons System” and Cost-Share Requirement

In FY 2015, Section 812 of Public Law 113-291 enacted “Enhancing the mission effectiveness of military personnel” replacing the previous definition of “weapons or weapons systems used by the Armed Forces.” Further, now “small businesses were eligible to receive OT for prototype without cost-share requirement” (Ulrey, 2016). The FY2015 changes were significant and broadened the interpretation for what OT authority could be used for.

e. Fiscal Year 2016: OT for Prototypes Made Permanent

Finally, as will be described in greater detail in the next chapter, the exciting new change came this Fiscal Year (2016) in Section 815 of Public Law 114-92 in which the temporary authority for OT for prototypes introduced in Section 845 was repealed. The law was rewritten, repackaged, made permanent, and is codified at 10 U.S.C. 2371b. And, the concept of “non-traditional defense contractor was redefined by 10 U.S.C. § 2302(9)” (Ulrey, 2016).

C. OTHER AGENCIES WITH OT AUTHORITY

After DARPA received OT authority, other agencies soon followed suit. The CRS report titled “Other Transaction (OT) Authority” provides:

In chronological order, the agencies that have OT authority, and the Congress in which the applicable statute or statutes were enacted as follows: 85th Congress: NASA; 101st Congress: DOD (OT authority for science and technology); 103rd Congress: DOD OT authority for prototypes; 104th Congress: Federal Aviation Administration (FAA); 105th Congress: Department of Transportation (DOT); 107th Congress: Transportation Security Administration (TSA) and the Department of Homeland Security (DHS); 108th Congress: Department of Health and Human Services (HHS), National Institutes of Health (NIH), and other agencies; and 109th Congress: Department of Energy (DOE). (Halchin, 2011)

1. Statutes Granting Agencies OT Authority

Taken from GAO-16-209, Table 1 provides a listing of agencies and the respective statutes which grant the agencies OT authority. As you can see, there are currently eleven organizations that have the ability to use this unique authority.

Table 1. Agencies Authorized to Use Other Transaction Agreements and their Statutory Authorities. Source: GAO-16-209.

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.

2. Agencies with OT Authority and OT Agreements Used

Table 2 provides an at-a-glance view of what types of OT agreements each agency has entered into between Fiscal Years 2010 to 2014. Almost all agencies use OT authority to advance research. Both DOD and DHS have used OTs for RD&D and for prototypes. The FAA, NASA, and TSA have used OT arrangements for other than RD&D and prototypes.

Table 2. Agency Use of Other Transaction Agreements for Fiscal Years 2010 through 2014. Source: GAO-16-209.

Agency	Types of activities		
	RD&D	Prototype	Other
Advanced Research Projects Agency – Energy (ARPA-E)	✓		
Department of Defense (DOD)	✓	✓	
Department of Energy (DOE)	✓		
Department of Health and Human Services (HHS)	✓		
Department of Homeland Security (DHS)	✓	✓	
Department of Transportation (DOT)	✓		
Domestic Nuclear Detection Office (DNDO) ^a			
Federal Aviation Administration (FAA)	✓		✓
National Aeronautics and Space Administration (NASA) ^b	✓		✓
National Institutes of Health (NIH)	✓		
Transportation Security Administration (TSA)			✓

Sources: GAO analysis of agencies' information. | GAO-16-209

^aDNDO did not enter into any other transaction agreements for fiscal years 2010 through 2014.

^bAccording to officials, NASA does not acquire RD&D services using other transaction agreements, but it does conduct collaborative RD&D activities with outside entities.

3. Fiscal Year 2010 through 2014 Data on OTs

GAO-16-209 also provides data on the number of active other transactions by agency from Fiscal Years 2010 through 2014. As evidenced in Table 3, NASA has the largest number of OT agreements during this time period, followed by DOD. This makes sense as NASA has had OT authority for the longest period of time.

Table 3. Number of Active Other Transaction Agreements by Agency, Fiscal Years 2010 through 2014. Source: GAO-16-209.

The totals in the table include all active other transaction agreements, both ongoing agreements as well as those started during this period.

Agency	2010	2011	2012	2013	2014
Advanced Research Projects Agency – Energy ^a (ARPA-E)	3	3	3	3	0
Department of Defense (DOD)	69	76	88	77	79
Department of Energy (DOE)	2	3	3	3	3
Department of Health and Human Services (HHS)	0	0	0	1	1
Department of Homeland Security (DHS)	19	14	8	4	3
Department of Transportation (DOT)	75	54	30	26	21
Domestic Nuclear Detection Office (DNDO)	0	0	0	0	0
Federal Aviation Administration (FAA)	44	48	54	60	65
National Aeronautics and Space Administration (NASA)	2,217	2,611	2,891	3,080	3,223
National Institutes of Health (NIH)	6	6	6	5	5
Transportation Security Administration (TSA)	408	435	564	579	637

Sources: GAO analysis of agencies' data and documentation. | GAO-16-209

^aARPA-E did not have its own other transaction authority until 2011. The three agreements shown above were carried out under DOE's other transaction authority. To date, ARPA-E has not used its own other transaction authority, according to officials.

D. SUMMARY

In summary, this chapter reviewed the impact of the Space Agreement Act of 1958 and how NASA's original OT authority paved the way for other agencies to gain similar authority to carry out their missions. This chapter also discussed the market changes happening in the S&T community and how the innovation driving shift from government to the commercial sector provided an environment where the government

had to rethink how to engage non-traditional companies that possessed the capabilities that the government desired. This chapter also looked at the reasons why commercial firms were reluctant to engage with government R&D efforts as well as reviewed the acquisition reform efforts of the time. The environmental and market factors described in this chapter led to DOD receiving OT authority. This chapter detailed DOD's OT authority and its subsequent changes and provided an overview of other agencies that have OT authority. The next chapter will focus specifically on the changes to OT for prototypes legislation implemented with the 2016 NDAA as well as examine applicable laws, socioeconomic, and legal considerations of OT agreements.

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III. CURRENT STATUTORY AND REGULATORY PROVISIONS

This chapter focuses on the latest legislative changes for OT for prototype authority that were enacted with the 2016 National Defense Authorization Act, examining what principles stayed the same and what were the major changes effected. This chapter also provides insight into what laws are applicable to OTs as well as reviews any socioeconomic or legal considerations.

A. 2016 NATIONAL DEFENSE AUTHORIZATION ACT

Representative Mac Thornberry is the Chairman of the House Armed Services Committee (HASC) and has been a staunch proponent of defense acquisition reform. In the article, “Thornberry’s Bill a Good Start on Acquisition Reform,” the author, Jason Tama (2015), states:

One proposal on the innovation front is to make ‘Other Transaction’ (OT) authority permanent, and better use it to attract more agile companies to defense work. This authority allows streamlined business transactions unburdened by federal acquisition regulations, and has been used for decades by innovative organizations such as the Defense Advanced Research Projects Agency, or DARPA. By making it permanent, Thornberry hopes OT authority will be used more broadly across other programs.

Representative Thornberry was successful in his attempts to make OT authority permanent. The 2016 NDAA was a major milestone for OT for prototype authority as the former Section 845 verbiage was repealed, repackaged, and rewritten and permanently codified at 10 U.S.C. 2371b. The following sections of this project will detail what has stayed the same and what is different.

1. What is the Same?

The 2016 NDAA didn’t entirely change all of the legislation with respect to OT for prototypes. There are several principles that have remained unchanged such as principles of competition, no requirement for justification for use of OTs, Comptroller General access, and application of the Procurement Integrity Act. At the DARPA

business conference, Mr. Scott Ulrey (2016b) did a fantastic job of explaining what has stayed the same in terms of OT for prototype legislation.

a. Principle of Competition

For example, even when using OT authority to enter into agreements, Contracting Officers are still encouraged to “use competitive procedures to the maximum extent practicable” (Ulrey, 2016). Fostering competition is a major tenet of federal acquisition and OT authority isn’t intended to circumvent the principle of competition. In fact, in an interview with Scott Ulrey (personal communications, May 23, 2016), he stated that in his experience, most OTs are in fact, competed.

b. Justification for Use of OT

Another principle feature of the OT for prototype legislation that has remained unchanged is that the current language “allows the use of OT authority without having to justify why a procurement contract, grant, or cooperative agreement is not feasible or appropriate” (Ulrey, 2016). Of course, with OTs for R&D, when contemplating an OT agreement, a justification is still required which substantiates why a procurement contract, grant, or cooperative agreement would not be feasible.

c. Comptroller General Access and Procurement Integrity Act

Two other aspects of the legislation that did not change with the 2016 NDAA include the Comptroller General’s access and the application of the Procurement Integrity Act. Specifically, “Comptroller General’s access to information and review thresholds” remains unchanged. Also, while in general, FAR and DFARS clauses do not apply to OT agreements, the “Procurement Integrity Act applies” for OT for Prototype legislation (Ulrey, 2016). The Procurement Integrity Act does not apply to OTs for R&D.

2. What is Different?

The 2016 NDAA did introduce some changes with respect to the legislation for OT for prototypes. For instance, the definition of what is a non-traditional defense contractor changed significantly. Also, the new law that is codified in 10 U.S.C. 2371b

describes four circumstances which define those eligible to participate in an OT agreement. There are also changes in terms of requisite approval levels and the process for follow-on production. Overall, these changes represent a significant improvement in the legislation for OT for prototype authority, with the most important change being that that the authority is no longer temporary and is now permanent.

a. What is a Non-Traditional Defense Contractor?

The definition of what is a “non-traditional defense contractor” changed significantly with the 2016 NDAA. Previously, the definition contained in the notes of Section 845, 10 U.S.C. § 2371 defined a non-traditional defense contractor as:

A business unit that has not, for a period of at least one (1) year prior to the date of OT, entered into or performed on: (1) Any contract that is subject to full coverage under Cost Accounting Standards (CAS); or (2) Any other contract in excess of certified cost or pricing data threshold to carry out prototype projects or to perform basic, applied, or advanced research projects for a Federal agency that is subject to the FAR. (Ulrey, 2016)

The previous definition “required submission of cost or pricing data for any contract over the threshold” (Ulrey, 2016). In contrast, the current legislation defines a non-traditional defense contractor as “An entity that is not currently performing or has not performed in the last one-year period on any contract for the DOD that is subject to full CAS coverage” (Ulrey, 2016). The major impact of this change is that this “broadens the pool of eligible-for OT recipients” (Ulrey, 2016). Further, instead of “any contract,” the definition has changed to “any contract for the DOD.” This also allows for the pool of eligible firms to be broadened; therefore, the resulting capabilities that are available to the government should be greater.

b. Who Can Participate?

In Scott Ulrey’s DARPA business conference presentation on “OT for Prototypes” he described the “four flavors” of eligibility of participants under 10 U.S.C. § 2371b. The first circumstance is when there is “At least one non-traditional defense contractor participating to a significant extent” (Ulrey, 2016). During an interview with

Mr. Ulrey (personal communications, May 23, 2016), he elaborated on his interpretation of what “significant extent” constituted. He explained that “Significant extent could mean a variety of things.... Even if the participation is small, if it contributes to the critical path of the program, it could be considered a significant extent.”

The second circumstance is when “all significant participants in the transaction are small businesses or non-traditional defense contractors” (Ulrey, 2016). As Mr. Ulrey stated in his presentation, “This highlights congressional intent to reach out to startups, small businesses, and companies not currently contracting with the government” (Ulrey, 2016).

The third circumstance which determines who can participate is when “At least 1/3 of the total cost of the prototype project is paid by the non-federal parties” (Ulrey, 2016). This essentially means that, for traditional defense contractors, that they would have at least a 1/3 cost share. Cost-sharing will be discussed in greater detail in Chapter IV.

Finally, if “the agency Senior Procurement Executive (SPE) determined exceptional circumstances justified use of the authority,” they could issue a waiver for a company to participate in an OT agreement (Ulrey, 2016).

Mr. Ulrey’s presentation elaborated on DOD agencies that can participate in OT arrangements. He stated that “under the authority of 10 U.S.C § 2371b, DARPA, the military departments, and designees of the Secretary of Defense” could participate. Further, “pursuant to the Secretary of Defense’s designation memo dated March 3, 2016, two agencies have been designated: the Missile Defense Agency (MDA) and the Defense Threat Reduction Agency (DTRA)” (Ulrey, 2016).

c. What are the Approval Levels?

Mr. Ulrey also presented that the approval levels for OT for prototype agreements are significantly different under the 2016 NDAA. For example, CO approval was previously required on OT agreements under \$20 million. The threshold for CO Approval has now increased from \$20M to \$50M. SPE approval used to be required for anything

from \$20M - \$100M; now, SPE approval is for any OT for prototype agreement valued from \$50-\$250 million. The Under Secretary of Defense (USD), Acquisition Technology and Logistics (AT&L) approval used to be at the greater than \$100M level; now, the threshold for USD/AT&L approval is for anything greater than \$250M. It is important to note that “SPE and USD (AT&L) approvals are not delegable” (Ulrey, 2016).

d. What is the Process for Follow-On Actions?

Finally, in terms of what is different, Mr. Ulrey explained at the DARPA business conference that the law concerning follow-on actions has changed dramatically. It used to be that there was a “pre-award determination requirement for agency to determine specific number of units at specific target prices that would be acquired at production stage” (Ulrey, 2016). Mr. Ulrey explained that it was “incredibly difficult to determine amounts” and that this “effectively did not allow follow-on actions” (Ulrey, 2016). Now, the current legislation “allows current agreement to be extended into production” (Ulrey, 2016). Mr. Ulrey explained that sole source actions are allowed provided the initial agreement was awarded under competition and the participants successfully completed agreement (Ulrey, 2016). The changes surrounding follow-on actions makes it much easier to enter into the production phase.

B. CHARACTERISTICS OF OT AGREEMENTS

This section will provide an understanding of the applicable laws/clauses, socioeconomic considerations, and legal considerations with respect to OT agreements. Much of the knowledge in this section was gleaned from interviews with OT subject matter experts.

1. Applicable Laws and Clauses

In general, OT agreements are not subject to the traditional FAR and DFARS rules and regulations. However, while OTs are not mandated to use FAR and DFARS clauses, “one can certainly paraphrase from a FAR clause”(Ulrey, personal communications, May 23, 2016). In an interview with Mr. Ulrey (personal communications, May 23, 2016), he mentioned that many OT agreements have similar

clauses to those prescribed by the FAR, such as termination and disputes clauses. Mr. Ulrey (personal communications, May 23, 2016) also mentioned that agreements generally include guidance on the management structure, scope of program and how to handle property and IP to include patents, data rights, and foreign access to technology. Agreements also provide information on how to manage funding issues and generally include a milestone schedule. Mr. Ulrey (personal communications, May 23, 2016) also stated that OT agreements, in his experience, typically contain between ten and fifteen clauses, which is far less than that of a traditional procurement contract.

With OTs, negotiation is heavily relied upon because there is no set template for OT agreements. Each OT agreement is unique and is truly a negotiation between both the government and the company. This is often referred to as “clean sheet contracting.” In an interview with Mr. Rick Dunn (personal communications, May 31, 2016), he stated that “Clean sheet paper contracting is hard.” While DARPA has a few sample agreements that serve as a starting point, Mr. Dunn (personal communications, May 31, 2016) mentioned that he fought against having a model but both industry and government wanted a model. Mr. Dunn (personal communications, May 31, 2016) stated that “Clauses should be secondary to meeting the objectives of the parties.”

2. Socioeconomic Considerations

a. Standard Laws and Small Business Set-Asides

An interview with Diane Sidebottom (personal communications, May 23, 2016) revealed that the intent of R&D is to advance technology and innovation; therefore, socioeconomic considerations such as small business set-asides are not appropriate as it would limit the pool of capable firms. Mr. Ulrey (personal communications, May 23, 2016) concurred with this assertion and stated that “There are no target small business goals; rather, the goal is that the government wants to obtain the best technology and innovation from whomever possesses those capabilities.” In terms of other socioeconomic considerations, Ms. Diane Sidebottom (personal communications, May 23, 2016) commented that the only socioeconomic policies that would apply would be “only to the extent that they are related to doing business in the United States, for

example, any civil rights, Equal Employment Opportunity (EEO), or minimum wage laws.” In an interview with Mr. Dunn (personal communications, May 31, 2016), he remarked that “Title IV of the Civil Rights Act” would be applicable and also agreed that there are no set aside concerns with OTs.

b. OTs and the Small Business Innovation Research (SBIR) and the Small Business Technology Transfer Program (STTR) programs

While OTs are not subject to small-business set-asides or target goals, OTs can be offered as an instrument option with other programs. According to the SBIR/STTR web portal:

The SBIR and the STTR programs are highly competitive government-funded contracts or grants that encourages domestic small businesses to engage in Federal Research/Research and Development (R/R&D) that has the potential for commercialization. The recipient projects must have the potential for commercialization and must meet specific U.S. Government R&D needs. These needs are advertised during three solicitations each year. You must be a small business that meets certain qualifications in order to be eligible for this program. (Frequently Asked Questions, 2016)

In an interview with Mr. Scott Ulrey (personal communications, May 23, 2016), the question of use of OTs in these programs revealed that, to his knowledge “DARPA has not used OTs with the STTR program but OTs have been used in the SBIR program.” Mr. Ulrey (personal communications, May 23, 2016) further stated that “Under SBIRs, the company is required to deliver a prototype and a small business does not have a cost share requirement.” Essentially, OTs are another instrument to accomplish the government’s mission when a traditional procurement contract or grant is not conducive to working with commercial companies. Mr. Ulrey (personal communications, May 23, 2016) stated that he “offers up OTs as an alternative to contracts or grants when a company may not have an accounting system and is a commercial versus a traditional defense contractor.” In other words, he uses OTs when “companies are commercially focused small businesses” (personal communications, May 23, 2016). Mr. Ulrey (personal communications, May 23, 2016) further explained that OTs are used infrequently, perhaps about “five times per year” and he strives for a “30 day

turnaround.” In the case of SBIRs, OTs are appealing to small businesses for all the same reasons as detailed in Chapter IV.

3. Legal Considerations

Part of the interviews included questions on potential legal implications with the use of OTs and whether or not OT agreements are subject to the same bid protest regulations as that of the traditional procurement contract. According to an article in *The Procurement Lawyer*, the authors describe CICA and OTs in relation to the CICA statute:

The Competition in Contracting Act of 1984 (CICA), revised the FAR to increase competition for the award of procurement contracts and to allow for protests of those awards. The Government Accountability Office (GAO) derives its authority to review awards and solicitations of contracts from CICA. One of the most attractive features of the GAO as a protest forum is the automatic stay provision that usually results from a timely protest. By contrast, one of the more useful characteristics of an OT agreement is that the award of these agreements generally is not subject to GAO review. (Cassidy, Plitsch, & Barclay, 2013)

During an interview with Ms. Diane Sidebottom (personal communications, May 23, 2016), she also concurred that OTs are not protestable as they are not subject to CICA. However, firms can certainly lodge their complaints. Ms. Sidebottom (personal communications, May 23, 2016) has acknowledged that there have been some complaints but that the government is overall very open and transparent in these situations.

During an interview with Mr. Scott Ulrey (personal communications, May 23, 2016), he also mentioned that firms can submit a challenge, but that he was not aware of any issues arising from DARPA issued OTs. Mr. Ulrey (personal communications, May 23, 2016) mentioned that he “has processed over 500 OT agreements himself and that DARPA has issued over 1000+ program solicitations with no legal issues.”

C. SUMMARY

In summary, this chapter focused on the specific changes effected from the 2016 NDAA on OT for prototype authority. The chapter reviewed what principles remained the same and what was different. Of course, the major change was that the OT for prototype authority was made permanent. Other changes included a re-definition of what

constituted a non-traditional defense contractor as well as changes in approval levels, requirements for participation, and requirements for follow-on production actions. This chapter concluded by describing OT agreements in terms of applicable laws and clauses, socioeconomic considerations, and any legal considerations.

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IV. DATA ANALYSIS AND FINDINGS

This chapter provides an analysis of OT authority using the TIPS[®] analytical framework authored by Professor E. Cory Yoder at the Naval Postgraduate School (NPS). This chapter also examines the advantages/benefits of OT authority as well as reviews potential disadvantages/risks of using this authority. Finally, this chapter takes a look at sample programs created through use of OT agreements and discusses the impact OT authority has had in various fields of study.

A. THREE INTEGRATIVE PILLARS OF SUCCESS (TIPS)[®] ANALYTICAL MODEL

As stated in E. Cory Yoder's 2016 MN 4371 presentation slides titled "Performance Metrics – Analytical Frameworks for Policy and Process Getting the Most from Contracting," the TIPS[®] analytical model is an "assessment and management tool for operational success developed by Cory Yoder for planning and executing contingency contracting operations." This model has been revised multiple times (2010, 2012 and 2013). Yoder presents a framework in which the main premise is that a successful organization is dependent upon the balance of the three pillars of personnel, platforms, and protocols combined with a strong foundation in authorization and appropriation. Essentially, all pillars must be examined to ensure that they are working together in harmony. For example, without the funds and authorization to carry out their mission, an organization cannot proceed or be successful. Also, if an organization has the right mix of people with the correct skillsets yet the platforms or the protocols are not in harmony, then the organization is not operating at its fullest potential. Figure 2 provides a visual of the TIPS[®] model.

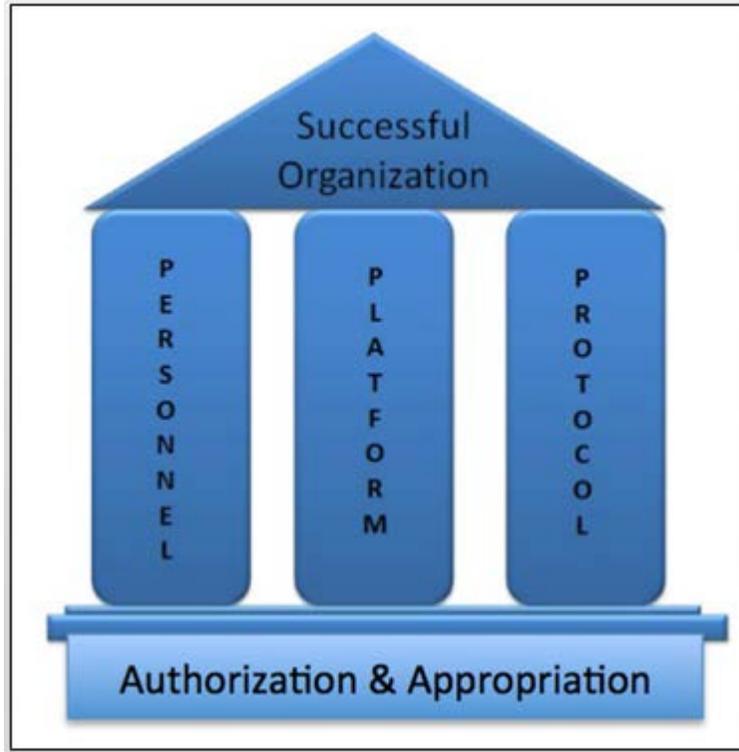


Figure 2. TIPS Analytical Framework. Source: MN 4371 Presentation Slides (2016)

1. Authorization and Appropriation

The foundation of the TIPS[®] model is authorization and appropriation. The three pillars of personnel, platforms, and protocols require appropriate authorization and appropriation because the mission cannot get accomplished without the funds to recruit the right people, create sound platforms, or establish protocols. With respect to OT authority, the original 2371 authority as well as the recently permanent authority codified under 10 U.S.C. 2371b for OT for prototypes provides this authorization from Congress. Under this authority, monies can then be appropriated and OT authority can be used to carry out the mission. USD/AT&L Frank Kendall (2016) stated in “Our Theme in 2016 – Sustaining Momentum” that “This year’s budget includes a number of advanced technology demonstrators and experimental prototypes and we need to get these provisions enacted and the projects started.”

Figure 3 provides an image which illustrates that authorization and appropriation represent the foundation of the three pillars. Without a strong foundation, the other pillars could not stand on their own.

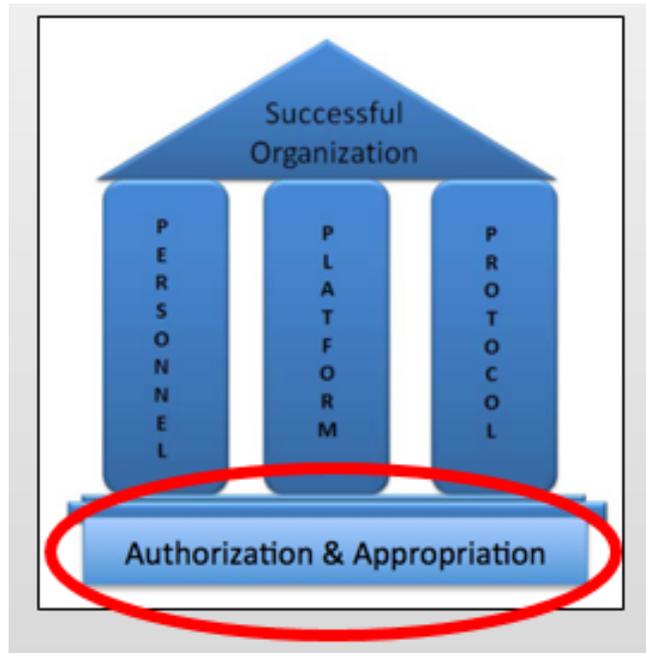


Figure 3. TIPS[®] Authorization and Appropriation. Adapted from MN 4371 Presentation Slides (2016).

2. Personnel

The first pillar in the TIPS[®] model represents personnel as illustrated in Figure 4. Under this pillar, it is critical to understand if an organization has the combination of the right people with the right skill set in the right positions. Yoder (2016) explains that there is a “Critical link between personnel, rank, position, credential and capability. He also explains that this pillar “includes not only the Contracting Officer (CO) but all personnel and stakeholders in the system.” In light of the personnel pillar, research has revealed several challenges in this area to include lack of OT subject matter experts, lack of qualified OT trainers, and culture shock from stakeholders.

a. Few Subject Matter Experts

The first challenge under the personnel pillar is that there are very few subject matter experts in the acquisition field who truly understand what OT authority is, can convey the intent behind OT creation, and who understand the impact OT authority has on the DOD mission. I was fortunate enough to be able to glean information about OTs from Mr. Richard Dunn, who was an integral part of getting both the DOD and DARPA OT authority during his tenure as General Counsel (GC) at DARPA. Mr. Scott Ulrey and Ms. Diane Sidebottom (a government contractor) are the resident OT experts at DARPA who have been tremendous advocates and supporters of this authority; they, too, were able to provide tremendous insight about OTs. Other military departments and DOD agencies such as MDA and DTRA also use this authority but it is unclear the depth of bench strength of personnel at those institutions who actually are knowledgeable about OT authority.

Further, since OT agreements are essentially unique arrangements that vary depending upon each specific circumstance, this requires highly motivated acquisition professionals that are able to ask the critical questions and that can excel in negotiating OT agreements. As stated by ranking member McCaul at the “Hearing before the Subcommittee on Emerging Threats, Cybersecurity, and Science and Technology of the Committee on Homeland Security House of Representatives One Hundred Tenth Congress Second Session”:

It is my understanding that the Department only allows its most experienced and highly trained contracting officers to enter into other transactions and even competes such contracts despite there being no requirement that it do so. I believe that this shows that the Department approaches the negotiations of other transactions with the appropriate gravity, and I look forward to hearing how the Department has put forth this authority to use and the technologies that it has developed as a result of these agreements. (U.S. Government Printing Office, 2008)

It is critical that DOD expand the depth and breadth of acquisition professionals in order to empower these individuals to possess the critical skillsets necessary to create effective and sound OT agreements. These professionals will have to be well educated in areas such as negotiation, intellectual property, patents, and data rights.

b. Lack of Trainers and Adequate Training Materials

The second challenge with respect to the personnel pillar has to do with training. Research has revealed that as there are very few subject matter experts, there are also consequently, very few qualified OT trainers and there is also little training available in this area of contracting. Unless an organization is geared towards R&D contracting, it is very possible that someone in the acquisition field would never become familiar with this acquisition instrument/authority. According to the Defense Acquisition University (DAU) Acquisition Training Application System (ACQTAS) website, there is a continuous learning course (CLC) 035 available titled “Other Transactions for Prototype Projects”; however, that DAU course needs to be refreshed to reflect the latest changes in legislation. Through interviews with Mr. Ulrey (personal communications, May 23, 2016), Mr. Dunn (personal communications, May 31, 2016), and Ms. Sidebottom (personal communications, May 23, 2016), it was revealed that they all concur that the DAU training is in need of an update. Mr. Ulrey, Mr. Dunn, and Ms. Sidebottom have all provided training on OT authority; however, there may come a point in time when they have retired; therefore, it is imperative that the DOD understand that there is a lack of qualified trainers in this acquisition area.

c. Stakeholder Culture Shock

Lastly and perhaps the most difficult challenge of all with respect to personnel has to do with the culture shock experienced by all stakeholders. It is safe to state that OT agreements represent an extreme departure from traditional acquisition methods. As stated earlier, OT agreements are not subject to traditional FAR and DFARS clauses and there is no singular template of how to create an OT agreement; therefore, OT authority and OT agreements represent an anomaly, an unknown, to many in the acquisition career field. Ms. Sidebottom (personal communications, May 23, 2016) revealed that it was her experience that some COs perceived an increased likelihood of an audit threat by using OT authority. In addition to COs being uncomfortable, other stakeholders such as technical experts and Congress are also wary of using OT authority. This is understandable since OT agreements are relatively new among the cadre of acquisition

tools and it is more comfortable to continue with known arrangements such as the traditional procurement contract, grant, or cooperative agreement. Program Managers may be unaware of the availability of OT agreements as an option. Congress has a responsibility to ensure that taxpayer dollars are being spent prudently; therefore, it is understandable that OT authority, which is absent of traditional safeguards, would be considered risky. In the following quote, taken from “The Final Report of the Integrated Product Team (IPT) on The Services’ Use of 10 U.S.C. 2371 ‘Other Transactions’ and 845 Prototype Authorities,” an example is provided which demonstrates the uneasiness of the Services’ in adopting OT authority:

The Services have not used ‘other transactions’ for research due to 10 U.S.C. 2371’s conditions that ‘other transactions’ can only be used when a standard contract, grant, or cooperative agreement is not feasible or appropriate. To support their research needs for dual-use projects involving commercial firms, the Services have issued ‘flexible’ cooperative agreements. As such, the Services’ have viewed ‘other transactions’ for research as an instrument of last resort. (Department of Defense, 1996)

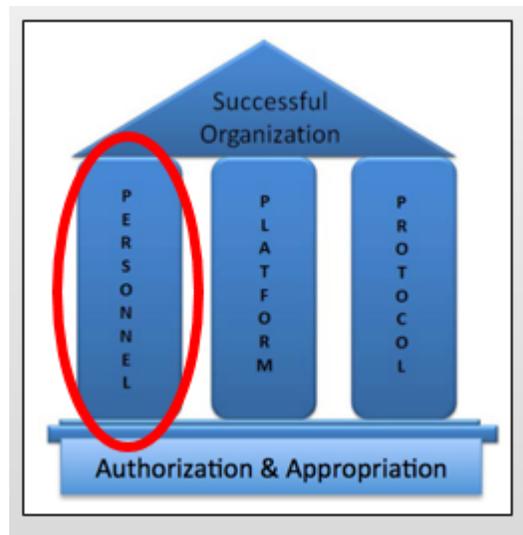


Figure 4. TIPS[®] Personnel. Adapted from MN 4371 Presentation Slides (2016).

Instead of COs, program managers, the Services’, and Congress viewing OT as a “last resort,” it is critical that the DOD begin to change culture by promoting a greater

understanding of OT authority and its important place in the contracting tool box in meeting the DOD's mission.

3. Platforms

The second pillar in the TIPS[®] model represents platforms as illustrated in Figure 5. Under this pillar, as stated by Yoder (2016), it is critical to understand if an organization has the “hardware and tangible software systems that provide for analysis, decision-making, production, management and communication.” Further, this pillar examines “quality and quantity mix and appropriateness for the most efficient organization (MEO) mission.” Again, the platform pillar must work in harmony with personnel and protocols—it cannot stand alone. Two challenges from a platform perspective are that there is no automated system for creating OTs and there is not a dedicated platform to advertising OTs.

a. Clean-Sheet Contracting - No Dedicated OT Writing System

Traditional procurement contracts are generated by automated systems. To name a few examples, federal and civilian agencies use contract writing systems such as the Standard Procurement System (SPS) Procurement Desktop 2 (PD2) developed by CACI, Inc.; PRISM contract writing system developed by Compusearch; and the Momentum contract writing system developed by CGI. In contrast, research has indicated that there is no dedicated platform or agreement writing system with respect to OTs. OT agreements are generally crafted on word documents and uploaded into the organization's cognizant contract writing system. Therefore, there is currently no standard e-commerce way of creating these agreements and there is no standard hardware or software to assist in creating agreements or program solicitations. According to Mr. Ulrey, this way of creating an OT agreement has been referred to as “clean sheet contracting” (personal communications, May 23, 2016).

b. No Advertising Platform

A second challenge with respect to OTs and platforms is that a platform currently doesn't exist solely for advertising OTs. DARPA offers OTs in addition to the traditional

procurement contract, grant, and cooperative agreement and advertises their R&D opportunities through Broad Agency Announcements (BAA's) and/or program solicitations that are often posted on the Federal Business Opportunities (FBO) website but Mr. Ulrey (personal communications, May 23, 2016) astutely points out that non-traditional companies that are commercially focused often are not familiar with and do not search the FBO website for those opportunities. In fact, both Mr. Ulrey (personal communications, May 23, 2016) and Ms. Sidebottom (personal communications, May 23, 2016) concurred that advertising has been the biggest challenge with respect to OTs in terms of attracting firms that are unfamiliar with doing business with the government.

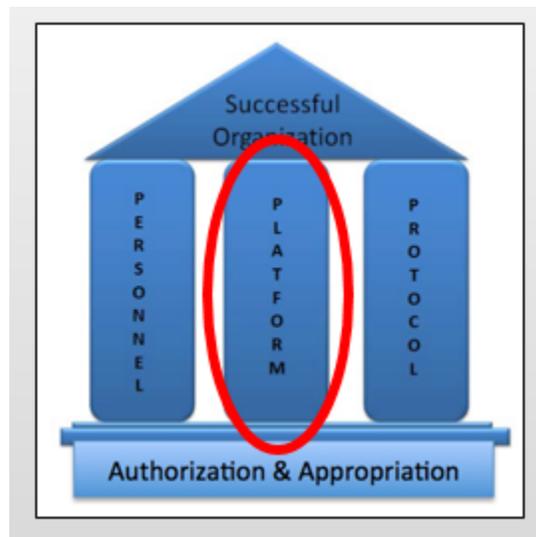


Figure 5. TIPS[®] Platforms. Adapted from MN 4371 Presentation Slides (2016).

4. Protocols

The third pillar in the TIPS[®] model represents protocols as illustrated in Figure 6. Under this pillar, Yoder (2016) states that it is critical to understand if an organization has the “the rules, decision making framework, policies, and business models necessary to achieve the desired end-state (ideal customer support/constraints).” Further, according to Yoder (2016), this pillar examines “quality and quantity mix and appropriateness for the most efficient organization (MEO) mission.” Again, the protocol pillar must work in harmony with personnel and platforms—it also cannot stand alone. With respect to OT

authority and the protocols pillar, while research has revealed that there is no definitive singular guidance on how to create OT agreements, it is a positive step that Congress has made the authority permanent.

a. Lack of Singular Guidance

In terms of protocols for OTs, one research finding is that there is no step-by-step guide to creating OT agreements because each OT agreement is unique and tailored to meet the specific mission needs of the parties involved. The USD/AT&L issued an “Other Transactions Guide for Prototype Projects” dated August 2002; however, it is severely outdated. While the guide provides useful information with respect to the OT for prototype authority, protocols haven’t been mapped out. One cannot refer to the guide for a step-by-step manual on how to create an OT agreement. Due to the unique nature of OTs, it is understandable that protocols have been difficult to standardize. According to Mr. Ulrey (personal communications, May 23, 2016), DARPA has been creating and collecting various samples of program solicitations for OT agreements, depending on the type of arrangement; however, these are meant to be a starting off point rather than a definitive template or one-size fits all solution.

b. Permanency of OT Authority

In terms of protocols, another positive is that OT authority for prototypes is now permanent. As illustrated in Chapter II, after a series of sunset extensions, the original 845 language has been repackaged and now made permanent. In discussions with Mr. Dunn (personal communications, May 31, 2016), he added that the permanency of this authority will add stability and also takes away the argument that the authority was “temporary.”

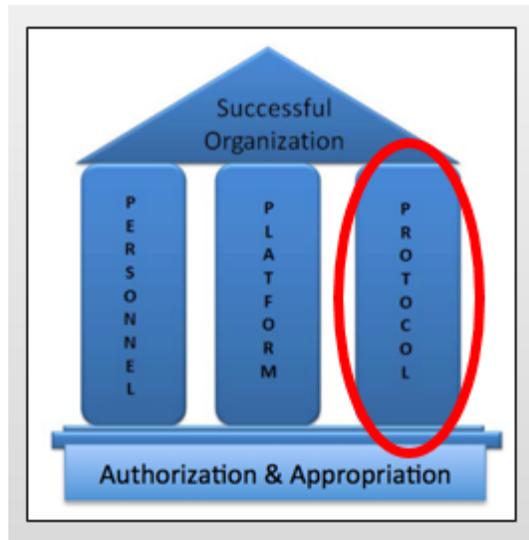


Figure 6. TIPS[®] Protocols. Adapted from MN 4371 Presentation Slides (2016).

B. ADVANTAGES AND BENEFITS

This section will analyze the advantages or benefits espoused by advocates of OT authority. Several benefits of OTs include flexible terms and conditions, attracting non-traditional commercial companies, cost-sharing, reducing risks and uncertainties, and fostering innovative business relationships.

1. Flexible Terms and Conditions

Research has revealed that many sources cite flexibility as the biggest advantage to using OT agreements. As stated in Chapter II, there are those companies that are wary of doing business with the government because the numerous FAR and DFARS clauses associated with traditional procurement contracts are daunting. In contrast, as stated in a GAO report titled “DOD Research: Acquiring Research by Nontraditional Means”:

Cooperative agreements and other transactions appear to have provided DOD a tool to leverage the private sector’s technological know-how and financial investment. The instruments have attracted firms that traditionally did not perform research for DOD by enabling more flexible terms and conditions than the standard financial management and intellectual property provisions typically found in DOD contracts and grants. Thus, the instruments have contributed to reducing some of the barriers between the defense and civilian industrial bases. (United States General Accounting Office, 1996)

The notion of flexibility is also mentioned by the authors of “Another Option in a Tightening Budget: A Primer on Department of Defense ‘Other Transactions’ Agreements” who state that “One of the primary advantages of OT agreements is that they are not subject to the FAR or many procurement statutes that govern traditional federal procurements” (Cassidy, Plitsch, & Barclay, 2013).

Another source also commented on flexibility with respect to audit requirements. According to the “Final Report of the Integrated Product Team on The Services’ Use of 10 U.S.C. 2371 ‘Other Transactions’ and 845 Prototype Authorities”:

DARPA’s section 845 “other transactions” for acquisition of prototypes employ commercial practices, and typically do not involve traditional, Government-unique requirements for audit. Instead, they rely on the contractor and independent auditors for certifications and maximize the use of existing contractor standard accounting systems/practices and property management systems. (Department of Defense, 1996)

Chapter II also discussed flexibilities with respect to intellectual property provisions. This has been touted as an advantage because commercial firms were hesitant to work with the government under FAR and DFARS clauses as well as provisions of the Bayh-Dole Act that tended to favor the government with respect to intellectual property rights. Under an OT agreement, there is flexibility because intellectual property is an area that can be discussed and negotiated between the parties so that the final agreement results in a mutually beneficial arrangement.

2. Attract Non-trationals

Another benefit of OT authority is that it has attracted “non-traditional” companies that either had not or did not want to do business with the government. As described in Chapter II, a shift occurred within the S&T community in that instead of the government being the driver of innovation, commercial industry was now the driver of innovation. With that said, the appeal of OTs finally enabled the DOD to attract these non-traditional firms that previously were not keen on doing business with the government. A GAO study titled “DOD Research: Acquiring Research by Nontraditional Means” provided metrics that bolstered these claims and stated that “...we estimate that

about 42 percent of the 275 commercial firms that participated in 1 or more agreements were firms that traditionally had not performed research for DOD” (United States General Accounting Office, 1996).

In March 1992, Mr. Richard Dunn, General Counsel for the Defense Advanced Research Projects Agency (DARPA) crafted a memorandum for the Director of DARPA as preparation for the Director’s upcoming testimony in front of the Defense Industry and Technology Subcommittee of the Senate Armed Services Committee. In the memorandum, Mr. Dunn provides an example of how DARPA was able to attract a non-traditional firm, stating:

A recent example involves high performance computing. DARPA issued a broad agency announcement. Dozens of proposals were submitted by large businesses, small businesses, universities and non-profits. After evaluation 21 awards were made. These included 18 procurement contracts, two agreements, and one grant. The significance of the agreements was that they were with industry leaders Intel Corp. and Cray Research, Inc., respectively. The agreement with Cray is especially significant because, though Cray is a leading supplier of supercomputers to the government as well as others, it has never previously participated in a government R&D program. In this case, we were able to effectuate the policy of FAR 35.002 by encouraging the ‘best sources from the scientific and industrial community to become involved...’ at the same time as we honored FAR 35.003 by utilizing a nonprocurement agreement in a ‘stimulate or support’ situation. (Dunn, Agreements Authority and Key Defense Acquisition Strategies, 1992)

A GAO report also provided another example of how an OT agreement attracted a major commercial firm that previously refused to do business with the government. The GAO report stated:

A 1994 other transaction with a Hewlett-Packard led consortium provides insights into how the authority was used to negotiate terms and conditions affecting both the financial management and intellectual property matters that are atypical of contracts, grants, or standard cooperative agreements. We had previously reported that Hewlett-Packard declined to accept government research and development funds to protect its technical data rights. In this case however, Hewlett-Packard responded to a DARPA announcement soliciting proposals to advance the state of the art in the manufacture of more affordable optoelectronics systems and components. According to DARPA, this technology will enable data transmissions at

high rates from high performance parallel processors at far lower costs than current technology allows. (United States General Accounting Office, 1996)

Interviews with Mr. Dunn (personal communications, May 31, 2016), Ms. Sidebottom (personal communications, May 23, 2016) , and Mr. Ulrey (personal communications, May 23, 2016) revealed that not only did OT authority attract “non-traditional” companies but it also attracted different segments of companies that previously had done business with the government. When asked what firms this authority attracted, Mr. Ulrey identified the following firms (although it was mentioned that there were many others): “Intel, Hewlett Packard, Motorola, commercial divisions of IBM, Agilent Technologies, Micron, Silicon Graphics, 3M, Novartis, Sanofi, Pfizer, and Medimmune” (personal communications, May 23, 2016).

The RAND study bolstered this idea that OT authority attracted different segments of traditional firms stating:

At the beginning of this study we spent a lot of time trying to find evidence that new companies had entered the ranks of DOD suppliers. We found a few. But we finally realized that a major part of the new activity comes from segments of large firms where the firm is a traditional supplier: names like 3M, Lucent, Motorola, Eastman Kodak, Oracle, and others. But major segments of those firms, using corporate funds to develop products for the commercial market, had previously been unwilling to work for DOD under the traditional contracting process. Now those broader segments of the firms are willing to work for DOD under an OT agreement. At Motorola – to cite one specific example that was quoted to us – one group containing about 200 engineers works for DOD under a FAR-type contract, but under an OT agreement it has access to the entire corporate development staff. The key difference is that, under an OT agreement, those firms can protect their intellectual property. (Smith, Drezner, & Lachow, n.d.)

3. Cost-Sharing

Research has also revealed that another benefit of OT authority is that it brings about the concept of cost-sharing. As will be discussed in the next section, cost-sharing is a divisive topic and was also viewed by some as a potential negative. However, according to the GAO report titled “DOD Research: Acquiring Research by Nontraditional

Means,” metrics indicated that “By sharing the costs of projects, DOD has partially offset its own costs while generally enabling recipients to expand the scope of the projects undertaken. In the 72 projects we reviewed, recipients planned to contribute about \$1.39 in cash or in-kind contributions for each dollar provided by DOD” (United States General Accounting Office, 1996). Whenever industry and the government are invested together in a project, there is more of a collaborative spirit and both parties are vested in working towards a good outcome.

4. Better Manage Risk and Uncertainties

Another benefit of OT arrangements is that they allow the government to better manage risks and uncertainties due to the collaborative nature between government personnel and industry as opposed to the traditional “us versus them” mentality sometimes experienced when working under the terms of a traditional procurement contract. As found through the RAND study titled “Assessing the Use of ‘Other Transactions’ Authority for Prototype Projects”:

Another major benefit of the OT process is the improved ability to manage the risks and uncertainties that are inherent in any development project. OT agreements typically contain a clause stating that at any time progress or results indicate that a change would be beneficial to project objectives, such a change can be made through mutual agreement of DOD and industry managers. As long as the change does not affect the stated program goals, or the total cost, those changes do not require external review and can become effective immediately upon agreement, with minimal documentation internal to the project. Such flexibility provides powerful opportunities to better cope with the problems and opportunities that occur when developing new systems and components. (Smith, Drezner, & Lachow, n.d.)

The RAND study also pointed out that “The authority to change also extends to the premature termination of a project if all parties agree. In one of the projects we studied, the project was terminated at the halfway point because progress was unsatisfactory and effective corrective action seemed unlikely” (Smith, Drezner, & Lachow, n.d.). The ability to quickly terminate is in sharp contrast with termination clauses of the traditional procurement contract, grant, or cooperative agreement, under

which the government generally is not able to act as quickly as they would under an OT agreement.

With R&D, when government and industry are working together to advance state-of-the-art technology and innovation that has yet to be seen or developed, it is critical for either party to be able to most efficiently manage risks and uncertainties. Therefore, the ability to either make changes and/or end a relationship quickly is an attractive feature of OTs.

5. Innovative Business Relationships

Another benefit of OT authority is that the nature of OT agreements fosters innovative business relationships. RADM Coetzee (2015) states that “When selectively used, this authority can engage nontraditional firms by allowing innovative business arrangements or structures that otherwise would not be feasible or appropriate using standard acquisition instruments.” The RAND study provided the following specific example of how an OT agreement resulted in an innovative business relationship, stating:

In several instances, the initial solicitation yielded proposals showing that a partnership of two or more firms would likely yield a better product. The DOD managers could negotiate with the firms and solicit a new proposal from such a partnership without the lengthy process of preparing and advertising a new solicitation. Sometimes an industry partnership is more easily formed through informal consortia, with one firm being the contracting agent. An OT agreement offers opportunities for such arrangements that would be prohibited under standard contracting rules. (Smith, Drezner, & Lachow, n.d.)

There are numerous examples of how OT agreements have resulted in innovative business relationships, but the main takeaway is that this wouldn't happen under a traditional procurement contract necessarily. It is only due to the unique nature of OTs that provide this added benefit of having the ability for industry to enter into different business arrangements in order to provide the best capabilities to the government.

C. DISADVANTAGES/RISKS

Although the overall tone of the research materials indicated that there were many advantages provided by OT authority, there are those who have expressed concern with

OT authority in the sense that some feel there are a lack of safeguards, the purported benefits are difficult to quantify, and that cost sharing limits the pool of available R&D contractors. Senator John McCain and Ms. Danielle Brian of the Project on Government Oversight (POGO) have been the most notable opponents to OT authority.

1. Lack of Safeguards

Research revealed that the biggest concern with respect to OT authority is a perceived lack of safeguards to protect government interests. Acquisition professionals have been trained to become well versed in the provisions, clauses, rules, regulations, and procedures as outlined in the FAR and DFARS. OTs are not subject to the same rules and regulations provided by the FAR and DFARS; therefore, there is a concern that there is potential for fraud, waste, and abuse. For example, L. Elaine Halchin, Analyst, American National Government, for the CRS, stated in testimony before the Subcommittee on Emerging Threats, Cybersecurity, and Science and Technology that:

Also, the protection and tools that contracting officers have to negotiate fair and reasonable prices and to ensure that costs are allowable and consistent with Federal procurement policies do not apply to other transactions. Additionally, the DOD inspector general has reported that some contracting officers fail to sufficiently document the justification for using research OTs, to document the review of cost proposals and to monitor actual research costs. Thus, the flexibility inherent in OT authority, which is a significant advantage of using this method, might also result in fewer protections and decreased transparency and accountability when compared to conventional procurement methods. (U.S. Government Printing Office, 2008)

Another example is provided by written testimony by POGO as follows:

POGO is concerned that both the missile defense and FCS programs are ripe for abuse and the use of OTA truly eliminates protections of hundreds of billions of taxpayer dollars. The OTA mechanism waives many of the financial oversight requirements of typical contracts for goods or services with the aim of attracting so-called non-traditional” defense contractors. “Other transactions” allow contractors to avoid taxpayer protections and transparency requirements in the contract statutes and regulations, which provide protections to ensure fair and reasonable procurement prices. OTA, however, is exempt from those protections and can exempt a defense contractor from undergoing government audits or providing the

federal contracting agency and government auditors with access to the contractor's pertinent records. (Brian, 2005)

Senator John McCain made the following remarks during testimony before the Airland Subcommittee. As Chair of the Subcommittee on Airland, he made the following opening statement, echoing the concerns of Ms. Halchin and the POGO:

Future Combat System (FCS) is of particular concern to me, especially the use of Other Transaction Authority (OTA) as the contracting vehicle...Since the 1994 Act, DOD officials and industry have repeatedly requested that we extend 'Other Transaction Authority' to production contracts. Congress has consistently refused to do so, because we have taken the view that with hundreds of millions or even billions of dollars at stake, the taxpayer needs the protections built into the traditional procurement system. While we recognize that there may be need to continue doing business with non-traditional contractors in the production phase of a program, we have preferred to address this issue through targeted waivers that are limited to those companies who need them. Now, the Army has put forward a program that uses 'Other Transaction Authority' for a \$20 billion contract, a figure much greater than the Congress intended and unprecedented. We look forward to your testimony and the testimony of the witnesses on the second panel regarding the appropriateness of using 'Other Transaction Authority' for a contract this size and whether the Army has included clauses that protect the Government's interest. (McCain, 2005)

Similarly, as stated in the "Written Testimony of POGO's Danielle Brian on DOD's Use of 'Commercial Acquisition' and 'Other Transaction Authority' before the Senate Armed Services Committee, Airland Subcommittee":

With regard to OTA, POGO concludes that their creation was based on a fallacy. Congress was lead to believe that hordes of 'non-traditional' contractors who were afraid of government red-tape were clamoring to bring the government innovative good or services. OTA was created to welcome these new businesses into the government contracting fold. Well, the hordes never came. Instead, we are left with a system without contracting controls, and billions of dollars being awarded to "traditional" contractors who were already selling goods or services to the government. Although government statistics show that a few 'non-traditional' contractors have stepped forward, those same reviews indicate that as much as 97% of OTA funds are going to traditional contractors. (Brian, 2005)

While there is a perception of a lack of traditional safeguards, each OT agreement does contain clauses as described in Section III of this research project. The key difference is that instead of abiding by a clause matrix guided by contract type, each OT agreement is unique in the sense that there is a true negotiation on the clauses and provisions to be included. Government and industry work together to carefully craft each agreement so that it is mutually beneficial for the partnership and that it is an effective agreement which advances the mission needs and program objectives. And, while the FAR and DFARS clauses are not mandatory, this does not preclude a CO from crafting a clause that is similar in spirit to FAR and DFARS clauses.

2. Lack of Metrics

Another area of concern with OT authority is that there are not concrete metrics that are available to measure success. Congress and COs are charged with being responsible stewards of the taxpayer dollar. Congress regularly authorizes and appropriates monies towards programs and needs to be able to collect data on how well taxpayer dollars were spent. With traditional procurement contracts, especially with known requirements and firm, fixed price scenarios, the government is able to know what something “should cost” and data on savings achieved through negotiations or competitive source selections is readily available. On the other hand, with R&D efforts, when the government is developing something that has never been developed before, capturing a “should cost” is virtually unachievable. Consequently, many R&D efforts are cost-reimbursement efforts and capturing metrics like savings is difficult, if not, impossible.

To answer DOD’s question on what benefits could be quantified with OT’s, a report published by the RAND Corporation conducted a thorough study of OTs and stated that their “strategy was to examine a sample of 21 projects in some detail, nearly one-third of the 72 prototype programs started during the 1994–1998 time period” (Smith, Drezner, & Lachow, n.d.). The RAND study concluded that:

One important element of our research was to develop a set of metrics that would measure the relative effects of OT on program outcomes and OTs broader policy goals. While attempting to accomplish this, we were unable

to develop any practical quantifiable metrics that others would find credible. The few quantifiable metrics we uncovered are either misleading (e.g., the number of nontraditional contractors) or unverifiable (e.g., cost avoidance). This result affects both the kind of information we can present and the kind of conclusions that can be drawn...It is not practical to compare a single OT program with a counterpart conducted under traditional contracting methods because we never have an analog program that is remotely comparable. (Smith, Drezner, & Lachow, n.d.)

Research has revealed that capturing metrics continues to be a challenge. As described in the next chapter, this will be an area of opportunity going forward.

3. Cost-Sharing

Another risk identified was that of cost-sharing. While advocates tout cost-sharing as an advantage provided by OT agreements, Mr. Dunn (personal communications, May 31, 2016) suggests that cost-sharing causes the pool of contractors that respond to R&D opportunities to shrink as traditional defense contractors are disincentivized to participate. And, opponents to the cost-sharing provisions indicate that this isn't acceptable because R&D efforts require the best and brightest to participate.

According to a DOD Audit Report titled "Cost Charged to Other Transactions," "Issues were identified with \$83.4 million (27 percent) of the \$304.3 million contractor cost share for research other transactions" (Office of the Inspector General, Department of Defense, 1999). Another IG report found that "Administration for 'other transactions' for research and prototypes was improving and generally adequate for 77 'other transactions' reviewed...However, the Army, the Air Force, and the Defense Contract Management Command needed to improve their management controls..." (Office of the Inspector General, Department of Defense, 1998). Finally, in DOD IG Report 97-114, there was a recommendation that "the Director of Defense Research and Engineering issue policy guidance to improve the use of other transactions and to ensure DOD cost share does not exceed the statutory limit" (Office of the Inspector General, Department of Defense, 1997).

Cost-sharing was not a requirement with the original OT authority; however, in an effort to truly incentivize government dollars going to “non-traditional” companies, the cost-sharing requirement was introduced. This will continue to be an area of discussion.

D. OT APPLICATION IN CURRENT INDUSTRIES/IMPACT

Throughout the years, numerous OT agreements have been crafted within the DOD. This section provides a couple examples of how OT agreements are contributing to advancing state-of-the-art technology in support of the warfighter. Two examples are from the U.S. Army and one example is provided from DARPA.

In 2000, a DOD notice advertised that “The Army announced the Joint Tactical Radio System (JTRS) Joint Program Office, with contract support from U.S. Army Communication Electronics Command (CECOM), recently signed an “Other Transaction” Agreement with BAE Systems Aerospace Inc.” and further provided details that:

BAE SYSTEMS will perform a research, development, and production effort to assist in validating the emerging open standard Software Communications Architecture (SCA) being developed as part of the JTRS Step 2A activities....The JTRS is an enabler of the doctrine of information superiority, as it must be supported on the battlefield. The SCA is a specified set of rules, methods, and design criteria for implementing software reprogrammable digital radios. The SCA will become the basis for all future DOD tactical radio acquisitions. While this effort is being sponsored by DOD, it is expected the SCA will become an industry accepted standard for both commercial and military radios. (U.S. Department of Defense, 2000)

Another example is found in the “Final Report of the Integrated Product Team on The Services’ Use of 10 U.S.C. 2371 ‘Other Transactions’ and 845 Prototype Authorities” which stated that:

A program manager from the Air Force’s Wright Laboratory briefed the IPT on his experience in using an OT on the Active Matrix Liquid Crystal Display Manufacturing Technology project. This project was undertaken before the Air Force received authority for OTs, and the 2371 OT was therefore issued by DARPA. The Air Force however negotiated the agreement and manages the project. The program manager pointed out that this project could not have been accomplished without the use of a

2371 OT, which provided tremendous flexibility in the negotiation of the terms and conditions and provided relief from the Bayh-Dole patent requirements. The program manager did stress that these instruments are not a cure-all panacea, but a valuable tool to be used in the appropriate situation. He characterized OTs as “...excellent wrenches applied to the right bolts...” and he highlighted the need for responsible, trained, and motivated individuals in utilizing these tools. (Department of Defense, 1996)

Another example described an OT arrangement with a consortium to further advance technologies dealing with electromagnetics:

On February 5, 2015, the U.S. Army Contracting Command issued a special notice announcing that the Office of the Deputy Assistant Secretary of Defense, Emerging Capabilities and Prototyping Office, intends to enter into a section 845 Prototype Other Transaction (“OT”) Agreement with the National Spectrum Consortium (“NSC”). This is the latest development in an initiative of the Department of Defense (“DOD”), first announced in March 2014, to provide government funding to support the research, development and maturation of technologies to enable advanced approaches to electromagnetic spectrum use. (Kelley Drye, 2015)

From electromagnetics to radio communications to liquid crystal displays, these are but a few examples of how OT agreements can be used in the DOD to advance technology in various fields of study. There are numerous other programs which have been enhanced through use of an OT agreement and technologies that probably wouldn't have been possible without these types of arrangements. As will be mentioned in the next Chapter, taking a deep dive into program specifics would be highly beneficial.

E. SUMMARY

In summary, this Chapter described the TIPS[®] analytical framework model authored by E. Cory Yoder and then analyzed OT authority with respect to the foundation of authorization and appropriation and then with respect to the pillars of personnel, platforms, and protocols. This Chapter also examined the various advantages/benefits and disadvantages/risks of OT authority. Finally, this Chapter provided a few examples of technologies that have been advanced as a result of entering into OT agreements.

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V. CONCLUSIONS AND RECOMMENDATIONS

This Chapter will provide conclusions resulting from the research analysis on OT authority with respect to the primary and secondary research objectives. This Chapter will also provide recommendations for OT authority going forward. Recommendations will be framed in accordance with the TIPS[®] model of personnel, platforms, and protocols.

A. CONCLUSIONS

As stated in Chapter I, the primary objective of this research is to present the reader with an in-depth understanding of OT authority by first examining the history of OTs and then presenting a thorough analysis of the current state of OT legislation. To accomplish this primary objective, the questions of what is the current state of OT authority and what does the law say and what implications this has were answered.

The secondary objective of this research is to take a holistic view of all available literature on OT authority in order to determine if the current language is sufficient as stated or if additional changes are required. To accomplish the secondary objective, the questions of if the benefits can be quantified, do the benefits outweigh the risks, and should other agencies use this authority were analyzed. The question of what is the way forward with OT authority will be examined and recommendations will be provided.

This research provided an overview of what an OT is not by examining its place in the contracting tool box in comparison to the traditional procurement contract, grant, and cooperative agreement. This research illustrated that OTs are important because threats to national security do exist. As stated by the USD/AT&L Frank Kendall (2016), “As I have said many times, our technological superiority is being challenged in ways we have not seen since the Cold War, and we must respond.” OTs provide a way for the government to attract the best and brightest to contribute to R&D efforts in advancement of state-of-the-art technology.

As stated by ranking member, Representative Michael McCaul, of the Subcommittee on Emerging Threats, Cybersecurity, and Science and Technology of the Committee on Homeland Security, House of Representatives:

The Department of Defense has used this authority to enter into other transactions for many years within DARPA where they have had many incredible technological breakthroughs. These agreements are not used to purchase office supplies or other commodities for which a traditional contract is perfectly acceptable. Other transactions cover the development of technology to fill a particular unmet need, such as automated bio warfare agent detectors or a system to knock missiles out of the sky before they bring down an airliner. (U.S. Government Printing Office, 2008)

Representative McCaul drives home the point that OTs are not meant to be a solution to all acquisition woes; however, when the government requires capabilities from the commercial sector and those capabilities can best be met through an OT arrangement, that would be a specific situation in which OTs would be beneficial.

Chapter II examined how the environmental and market factors such as the Space Agreement Act of 1958 planted the original seeds for DOD's OT authority. In addition, changes in the S&T community; commercial firms' aversion to doing business with the government; and an environment conducive to acquisition reform fostered an atmosphere supportive to DOD securing OT authority.

Chapter III examined the detailed legislative changes to DOD's OT for prototype authority and took a deep dive into the implications of the 2016 NDAA. This research examined what principles remained the same and what changes were effected by the 2016 NDAA. The OT for prototype legislation being made permanent represented a major accomplishment for DOD.

Finally, Chapter IV provided an analysis of OT authority using the TIPS[®] analytical framework created by E. Cory Yoder. OT authority was reviewed in terms of the Three Integrative Pillars of personnel, platforms, and protocols. Perspectives from both advocates for and opponents against OT authority were also reviewed.

In light of the research conducted, it was revealed that "The DOD also has not taken full advantage of 'other transaction' authority (OTA) for prototype projects"

(Coetzee, 2015). There are very few SMEs on OT authority and this could present a problem if the government fails to capture the resident knowledge from the OT SMEs. There is also a lack of robust training and changing culture to get stakeholders comfortable with using OT authority will take some time.

With respect to platforms, the biggest challenge for the government has to do with advertising and getting the word out that OT agreements are a viable tool for commercial firms to engage with the government in advancing R&D. In terms of protocols, the research revealed that guidance exists but there is no single definitive guidance to creating OT agreements.

There are numerous benefits to OT agreements such as flexibility, cost-sharing, innovative business relationships, the ability to attract non-traditional firms, and an increased ability to manage risks and uncertainties. On the other hand, there is the potential for abuse since OTs are not subject to the traditional safeguards such as FAR and DFARS clauses; however, that concern is not a guarantee of abuse. It merely signals potential and in fact, OT agreements do have negotiated terms and conditions. The difference is that each OT agreement is custom tailored for the specific situation. The research also revealed that capturing benefits in terms of concrete metrics is difficult at best. And, research has revealed that the concept of cost-sharing could be considered a risk, depending on one's perspective.

In conclusion, one only has to watch the news to see that the U.S. faces threats not only on the domestic front but also from foreign threats such as those from the Islamic State of Iraq and the Levant (ISIL), also known as the Islamic State of Iraq and Syria (ISIS). With that said, the U.S. has to be able to stay at the forefront of innovation and that is only possible if the government thinks outside of the box and leverages its investments in R&D by collaborating to the maximum extent possible with the commercial sector. OT agreements provide an attractive and unique authority that enables the government to attract these capability rich firms.

B. RECOMMENDATIONS

While the 2016 NDAA took a giant leap in legitimizing OT authority by creating permanency and restoring the legislation to its original intent, there remain many areas of opportunities for improvement with respect to personnel, platforms, and protocols.

1. Personnel

a. Knowledge Management and Succession Planning:

As mentioned in Chapter IV, there are few subject matter experts who are knowledgeable about OTs. Mr. Dunn, Mr. Ulrey, and Ms. Sidebottom provided a wealth of knowledge; however, it is critical that while these SMEs are still available for guidance, that agencies begin to manage the knowledge that resides with these individuals and to also conduct succession planning. The major question should be “Who will comprise the next generation of OT experts that will be advocates for this authority?”

b. Training:

Another recommendation is that the DAU needs to immediately update the web-based courses that are available on the ACQTAS website and the “Other Transactions Guide for Prototype Projects” dated August 2002 also needs to be refreshed. Further, it would be interesting to understand how the agencies that are using OT authority are providing training. It is highly recommended that DOD centralize responsibility for training on OTs to ensure that a consistent message is being promulgated in accordance with the intent of the approved OT authority and current legislation. Once a cadre of qualified trainers have been developed, those trainers could level set all organizations that have been granted OT authority to ensure the DOD is creating OT agreements in a consistent manner.

c. Agency and Government-Wide Working Groups

Another recommendation that would be beneficial for DOD components who use OT authority is to create agency and government-wide working groups. By getting together in a formal setting, the government can share OT best practices and lessons learned. It would also be beneficial for DOD to meet with civilian agencies who have OT

authority to also share best practices and lessons learned. While DOD and civilian agencies certainly have different missions, it would be useful to have this dialogue to see if improvements can be made to current practices so that the DOD can operate most efficiently.

d. Historian for OTs

Congress has long been interested in quantifying the benefits of OTs and will continue to want to quantify potential benefits. Another recommendation that would be beneficial is for each DOD component to have a historian who could document what programs/technologies were advanced due to creation of an OT arrangement. Since it is difficult to have standard metrics quantifying benefits, having a dedicated OT expert would allow for these technological advances to be captured, better understood, and consequently shared with interested stakeholders.

2. Platforms

a. Dedicated website for OTs

It would be beneficial to have a one stop shop for everything about OTs—from a history of the legislation to sample agreements and program solicitations. A dedicated OT website could provide links to training and could also highlight DOD programs created as a result of OT agreements. This website could host all the relevant policy and protocols as well as provide points of contact for additional information.

b. Advertisement

Mr. Ulrey (personal communications, May 23, 2016) and Ms. Sidebottom (personal communications, May 23, 2016) have indicated that advertising has really been the biggest challenge with respect to OT authority. A recommendation would be to have a dedicated portal for advertising OTs that targets a different customer base than the FBO website. The working groups could prove to be useful in framing suggestions/forums for how to best advertise OT opportunities.

3. Protocols

The DOD has issued a guidebook for OT for prototypes; however, it is outdated and requires updating to include the recent legislative changes. While there is no single definitive guide to creating OTs, in line with the recommendation for an OT website, creating updated protocols would be beneficial to those who are new to creating OT agreements.

C. AREAS FOR FUTURE STUDY

This research provided a general overview that should be helpful to readers completely unfamiliar with OT authority. It is the hope of the author that this research allowed the reader to understand how this authority compares to the traditional procurement contract, grant, or cooperative agreement and to understand its importance in accomplishing the mission of the DOD. It is also the author's hope that the reader understands the environmental and market factors which led to DOD gaining this authority and the important impacts of the 2016 NDAA. The reader should also be aware of the perceived benefits and risks associated with this authority and to be able to understand both the advocate and contrarian viewpoints. As a follow-up to this research, it would be beneficial for DOD to conduct a more in-depth examination of specific programs enacted through OT agreements at each defense agency that has been granted OT authority. The RAND study was an initial effort in reviewing program specific data in order to understand if it is possible to quantify the benefits. Doing a long term thorough program specific review would be very useful in understanding and advertising the true benefits of OT authority.

APPENDIX A. INTERVIEW WITH SCOTT ULREY, DEPUTY DIRECTOR, DARPA CMO.

A. Historical:

1. What was the role of DARPA's Contract Management Office in creating and advancing Other Transaction (OT) authority within the Department of Defense?

DARPA was the first agency within DOD to receive OT authority. Mr. Richard Dunn was the General Counsel at DARPA at the time and he worked with congressional staffers to create the language. There was concern at the time that DARPA wasn't reaching the best performers, particularly, commercial companies and DARPA wanted to tap into more than the traditional DOD contractors. For example, there were unique companies, like the Intels of the world, who refused to do business with the government.

2. What changes have been made with OT authority over the years? How has the language and the law changed?

The original authority was granted in November 1989 with the Fiscal Year 1990 National Defense Authorization Act (NDAA). This was primarily designed to promote dual use technology, meaning that the technology would have both commercial and military applications. This original authority was meant to tap into commercial companies and DARPA tried to engage with as many of these companies as we possibly could. Advancing technology was the primary purpose for OT authority. I like to think of OT agreements as "mission focused" or "good faith" instruments.

The majority of legislative changes really pertains to OT for prototype authority. My 2016 DARPA business conference slides detail the specific changes to OT authority legislation over the years. Since OT for Prototype authority was originally granted in Section 845, the OT for Prototype authority has come to be known colloquially as "845s" even though changes to this authority have appeared in different sections.

Another note is Technology Investment Agreements (TIAs) are governed by the Assistant Secretary of Defense (ASD) for Research and Engineering (R&E) while prototyping is governed by the Office of the Under Secretary of Defense (OUSD) for Acquisition, Technology, and Logistics (AT&L) under the Defense Procurement Acquisition Policy (DPAP).

3. What was the impetus behind the need for OT authority?

There was a need for innovation to tap into commercial technologies that were more advanced than DOD. At the time, DOD was unable to tap into those companies. Those firms would sell products to the government but would not do R&D with the government. There were several reasons that commercial companies didn't want to do business with the government. One of the reasons had to do with auditing, commercial companies didn't want to have to deal with defense auditors and wanted to use commercial practices instead of traditional government requirements. Other reasons included overly burdensome regulations such as cost principles and regulations surrounding intellectual property, patents, and property management systems.

4. Has availability of this authority increased the number of contractors proposing on Research & Development efforts?

Yes, as long as companies are aware at the solicitation stage that the government is offering OT agreements as a potential instrument. Unfortunately, awareness has been the biggest drawback to the whole process. While traditional government contractors are aware of the Federal Business Opportunities (FBO) website, not all commercial companies read FBO.

5. How long did it take to get the authority for DOD?

Within two years, from 1987 to 1989.

6. What "non-traditional" companies has this authority attracted?

OT authority has attracted numerous "non-traditional" companies. The following are examples but there are numerous others:

Intel
Hewlett Packard
Motorola
Commercial divisions of IBM
Agilent Technologies
Micron
Silicon Graphics
3M
Novartis
Sanofi
Pfizer
Medimmune

For OTs for research, which generally results in a TIA, those agreements are generally for dual use technologies and in order to do a TIA, there is a

requirement of participation by a for-profit organization. When working with universities, the tendency is to enter into grants. However, one scenario using 'OT for Other' could be entering into an agreement with a consortia of universities. One could also have an OT for other agreement with a group consisting on non-profit organizations. You could have joint solicitations with industry. You could lease out R&D equipment. You could loan out government property and eventually, the company would own that property depending on the terms stated in the agreement. Another example would be technology development programs with foreign governments. Foreign governments have approached the government in response to a Broad Agency Announcement (BAA) because they have a great technology and want to enter into an agreement. A foreign government is not a for-profit entity and cannot enter into a traditional procurement contract, grant, or cooperative agreement; therefore, an OT for other arrangement would be a possible solution.

7. What stakeholders were involved in crafting the OT authority?

As mentioned earlier, Mr. Richard Dunn, General Counsel at DARPA was critical in working with Congress to craft the original OT authority. DARPA CMO had a strong supporting role through myself, John Ablard, and Elaine Ely. Dick Kuyath at 3M was also instrumental.

8. Have any responses been received from industry on this authority?

Yes, after agreements have been negotiated, I have received comments from industry, mainly that they like the flexibility of OT agreements.

B. Current State of OT authority and law:

1. What is the current state of OT authority under the 2016 National Defense Authorization Act?

The current state of OT authority under the 2016 NDAA is that the OT for prototype authority has been made permanent. Please refer to my 2016 DARPA business conference slides which detail the specific changes to OT authority legislation over the years.

2. How does the current state differ from previous NDAA's?

Please refer to my 2016 DARPA business conference slides which detail the specific changes to OT authority legislation over the years.

3. What Department of Defense agencies use this authority?

I believe OT authority is being used by DARPA, the military services, the Missile Defense Agency (MDA), and the Defense Threat Reduction Agency (DTRA).

4. Do any socioeconomic policies apply to OT's?

OT agreements still have to comply with the laws of the land. For example, companies still have to comply with any Equal Employment Opportunity (EEO) laws and regulations. However, with respect to set-aside requirements or small business goals, there are no set aside requirements or small business targets. The reason is that with R&D, the over-arching goal is for the government to obtain the best technologies and innovations from whomever is the most capable.

DARPA has not used OTs with the STTR program but OTs have been used in the SBIR program.

Under SBIRs, the company is required to deliver a prototype and a small business does not have a cost share requirement. I offer up OTs as an alternative to contracts or grants when a company may not have an accounting system and is a commercial versus a traditional defense contractor. I use OTs when companies are commercially focused small businesses and OTs are used infrequently, perhaps about five times per year and I strive for a 30-day turnaround.

5. Are there any legal recourses in cases of a competitive OT in which a contractor might dispute the evaluation criteria - Is this an issue? Can you sole source? Have any legal issues arisen from these types of arrangements?

From my experience at DARPA, having worked with over 1000+ program solicitations and over 500 myself, I have not encountered any legal issues ever. OT agreements are not protestable in the same sense that traditional procurement contracts are protestable. Companies can submit challenges but there is no formal protest forum. You can sole source OTs; however, it has been my experience that most OTs are competed off Broad Agency Announcements (BAA's). Also, solicitations are not referred to as Requests for Proposals (RFPs) or Requests for Quotes (RFQs) but rather program solicitations are issued.

6. What clauses are traditionally included in OT arrangements? How do these clauses differ from traditional FAR based contract clauses?

Traditional Federal Acquisition Regulation (FAR) based clauses are not required but one can always paraphrase from a FAR clause. DARPA has several sample agreements depending on the circumstances but many agreements include clauses on termination, disputes, patents, data rights,

and foreign access to technology. An agreement would also review the management structure, scope of the program, funding issues, the statement of work (SOW), and milestone schedule. An OT agreement, in general, has about 10–15 clauses, which is far less than a traditional procurement contract.

7. Are OTs subject to the same bid protest regulations?

No.

8. What training is available for 1102s on OT's?

Zero. Well, there are DAU online courses but they are outdated and need to be updated.

C. Efficacy (is the authority working):

1. Is there a way to quantify the benefits of using this authority?

Unfortunately, there is no concrete formula to quantifying the benefits of using this authority. It really is necessary to examine the technologies that are being developed. OTs are used when it is necessary to attract commercial companies because of its inherent flexibility.

2. Do you have any examples illustrating benefit of using OT?

One example that I can provide is Global Hawk, which is up and running. It took 7 years to develop the airframe versus a typical 20 year timeline. Also, there was a streamlined requirements document.

DOD also used OT authority to help develop high definitions systems such as flat panel displays. There have also been many advances in microelectronics, the biotech industry, and with pharmaceutical companies. OT authority has resulted in the creation of commercial products.

D. The Path Forward:

1. What implications do the recent changes per the 2016 NDAA on OT have for DOD going forward?

The current legislation is written in the spirit of the original intent. One issue with the old authority is that many Contracting Officer's would not use OTs unless they could define that the prototype was directly relevant to the

offensive version of “weapons or weapons” system. Now, the language has been broadened.

The original language has been expanded to include provisions for small businesses and non-traditional contractors.

Also, the government can now more easily move into a follow-on production contract provided the parties complied with the initial agreement. And, this can be done either through an OT agreement or a FAR based contract.

2. What are advocates’ point of view for using OT authority? What are opponents’ point of view on using OT’s?

Advocates enjoy that OT agreements are completely flexible and negotiable and that you essentially start from a “clean/blank” sheet of paper. There is less red tape and virtually no bureaucracy. Using OT agreements results in a greater collaborative team approach.

Opponents point to a lack of oversight and a lack of controls. Opponents are generally wary of that which is different and they also cite a lack of metrics as a risk area.

3. What are the potential benefits and risks of using this authority?

Benefits we have covered, the main one being flexibility. A risk is that if both the government and the company do not approach OT agreements from a “good faith” perspective, it would be easy to trip each other up. OT agreements are very much dependent on mutual trust.

4. Are other agencies using this authority? If yes, why? If no, why?

Yes, DHS/TSA, NASA, FAA, DOT, DOE, IARPA, HHS... They are using this authority because of its flexibility and to attract the best resources. If agencies are not using this authority or if they do not have this option, they are limiting potential for obtaining the best technologies.

APPENDIX B. INTERVIEW WITH DIANE SIDEBOTTOM, SENIOR POLICY ANALYST, STRATEGIC ANALYSIS, INC.

A. Historical:

1. What was the role of DARPA's Contract Management Office in creating and advancing Other Transaction (OT) authority within the Department of Defense?

DARPA was the first agency within DOD to receive OT authority – the 2371 authority. Mr. Richard Dunn was the General Counsel at DARPA at the time and he used to work at NASA. He thought it was a great authority and that it wasn't being used in the right way and wanted to bring this same authority to DOD. There was a strong relationship between the GC and the Contracts Management Office (CMO). Scott Ulrey and John Ablard were strong supporters of OT authority.

The government wanted the ability to be able to move quickly and the FAR was not user friendly. The government was falling further behind in terms of insight versus oversight. The government wanted to know what industry thought they could do. In the early 1990s, there was a technology reinvestment project (TRP) which was a task force run by DARPA which promoted OTs.

OTs represented an opportunity for joint investment in developing dual use technologies.

2. What changes have been made with OT authority over the years? How has the language and the law changed?

The original authority was granted in November 1989 with the Fiscal Year 1990 National Defense Authorization Act (NDAA). The OT for research language cited in the original 2371 legislation hasn't changed much. The majority of legislative changes really pertains to OT for prototype authority. Scott Ulrey's 2016 DARPA business conference slides detail the specific changes to OT authority legislation over the years.

3. What was the impetus behind the need for OT authority?

The government was starting to see large segments of certain industries walking away from the government. Companies didn't need or want to do business with the government, largely because of the rules and regulations surrounding intellectual property and cost accounting principles.

Research and Development (R&D) is different than buying products or widgets. In fact, R&D has its own section of the FAR. With that said, the government was finding that it no longer had the same resources as those available to commercial firms and had to find a way to tap into the commercial sector.

4. Has availability of this authority increased the number of contractors proposing on Research & Development efforts?

Unfortunately, in recent times, it does not seem that OT agreements are used as frequently as in the early days. One of the biggest challenges has been advertising, sometimes OTs have not been offered as a choice. There was much better advertising in the early days. Once personnel left that were familiar with OTs, it seems that use of OTs dropped. It is natural for people to gravitate towards instruments that are familiar to them.

5. How long did it take to get the authority for DOD?

I wasn't at DARPA when the original authority was crafted but I believe it took approximately two years, from 1987 to 1989. The OT for prototypes came shortly after.

6. What "non-traditional" companies has this authority attracted?

There are too many to name individually – I concur with the list that Scott Ulrey provided. Of course, there are numerous other companies.

7. What stakeholders were involved in crafting the OT authority?

As mentioned earlier, Mr. Richard Dunn, General Counsel at DARPA was critical in working with Congress to craft the original OT authority. DARPA CMO had a strong supporting role through myself, John Ablard, and Scott Ulrey.

8. Have any responses been received from industry on this authority?

At one point, there was a Request for Information that indicated that many companies liked OT authority because they liked the ability to negotiate as well as the flexibility. The more traditional contractors did not like the cost share requirement.

B. Current State of OT authority and law:

1. What is the current state of OT authority under the 2016 National Defense Authorization Act?

The current state of OT authority under the 2016 NDAA is that the OT for prototype authority has been made permanent. Please refer to Scott Ulrey's 2016 DARPA business conference slides which detail the specific changes to OT authority legislation over the years.

2. How does the current state differ from previous NDAA's?

Please refer to Scott Ulrey's 2016 DARPA business conference slides which detail the specific changes to OT authority legislation over the years.

In a general sense, there is now a broader definition of "non-traditional" contractor and the terms for follow-on production has changed. The major change is that this authority is no longer temporary, it is permanent. Also, people previously were hung up on the definition of "weapons or weapons systems" and this definition has also been broadened and widens the pool of applicability.

3. What Department of Defense agencies use this authority?

I believe OT authority is being used by DARPA, the military services, the Missile Defense Agency (MDA), and the Defense Threat Reduction Agency (DTRA). I also believe that the Army is using OTs at Picatinny Arsenal in New Jersey.

4. Do any socioeconomic policies apply to OT's?

OT agreements still have to comply with any laws with respect to doing business in the United States. For example, companies still have to comply with any Equal Employment Opportunity (EEO), civil rights, or minimum wage laws and regulations. However, with respect to set-aside requirements or small business goals, there are no set aside requirements or small business targets.

5. Are there any legal recourses in cases of a competitive OT in which a contractor might dispute the evaluation criteria - Is this an issue? Can you sole source? Have any legal issues arisen from these types of arrangements?

OT agreements are not protestable in the same sense that traditional procurement contracts are protestable. Companies can submit challenges but there is no formal protest forum. You can sole source OTs; however, it has been my experience that most OTs are competed off Broad Agency Announcements (BAA's). It has been my observation that the government handles informal feedback sessions very well and that the government is very transparent.

6. What clauses are traditionally included in OT arrangements? How do these clauses differ from traditional FAR based contract clauses?

(same response as Scott Ulrey) Traditional Federal Acquisition Regulation (FAR) based clauses are not required but one can always paraphrase from a FAR clause. DARPA has several sample agreements depending on the circumstances but many agreements include clauses on termination, disputes, patents, data rights, and foreign access to technology. An agreement would also review the management structure, scope of the program, funding issues, the statement of work (SOW), and milestone schedule. An OT agreement, in general, has about 10–15 clauses, which is far less than a traditional procurement contract.

(added) Of course, any civil rights clauses, as appropriate.

7. Are OTs subject to the same bid protest regulations?

No, because OTs are not subject to the Competition in Contracting Act (CICA).

8. What training is available for 1102s on OT's?

Not much. Well, there are DAU online courses but they are outdated and need to be updated. When OTs first started, Rick Dunn and John Ablard were often requested to speak at industry events and were also invited to speak to individual organizations. Now, a lot of the training is by word of mouth. Scott Ulrey sometimes travels to train on OTs.

C. Efficacy (is the authority working):

1. Is there a way to quantify the benefits of using this authority?

One would have to do a comprehensive historical survey of all OTs issued and also think about the question “What does success mean?.” Even failure can be a success in R&D because one can learn from failures. Success not only means attracting companies that previously did not do business with the government but also getting those companies with experience in dealing with the government to work differently with the government.

2. Do you have any examples illustrating benefit of using OT?

One example that I can provide is regarding the Arsenal Ship program, a joint program with the Navy. This was an autonomous vertical arsenal and there was a rolling down select. There was a company that was the creator and

supplier of launch tubes and was required to supply tubes to each company. New companies ended up making their own tubes and even the creator and supplier of the tubes re-engineered their own tubes. This is an example of how companies made their own decisions rather than the Government directly industry on how to do something.

D. The Path Forward:

1. What implications do the recent changes per the 2016 NDAA on OT have for DOD going forward?

The definition of who is considered a non-traditional contractor has changed. The space has been broadened dramatically.

Also, the government can now more easily move into a follow-on production contract provided the parties complied with the initial agreement. The government can be in low-rate initial production (LRIP) faster. The government can negotiate production quantities.

The 2016 NDAA made the authority permanent; therefore, the government doesn't have to worry about temporary authority any longer.

2. What are advocates' point of view for using OT authority? What are opponents' point of view on using OT's?

(same answer as Scott Ulrey) Advocates enjoy that OT agreements are completely flexible and negotiable and that you essentially start from a "clean/blank" sheet of paper. There is less red tape and virtually no bureaucracy. Using OT agreements results in a greater collaborative team approach.

Opponents point to a lack of oversight and a lack of controls. Opponents are generally wary of that which is different and they also cite a lack of metrics as a risk area.

3. What are the potential benefits and risks of using this authority?

Benefits include flexibility and that the government can behave like the rest of the world behaves. Times have changed so much that companies don't necessarily need government work but the government needs innovation. We (the government) can't live without working with commercial companies.

Some risks include a cultural problem in the sense of getting the government and contractors to behave differently. Contractors sometimes don't trust the government because they think the government has a secret agenda.

Another risk is that you don't have the safeguards/backup of the FAR. The Contracting Officer really needs to think about what needs to go into the agreement. Thought needs to happen about not just the life of the agreement but the life span of whatever the government is trying to make. For example, intellectual property lasts forever. Therefore, what you are creating matters. You want to negotiate what you need early on.

Some things that contractors dislike about working with that government is that (1) it takes too long; (2) cost accounting standards; (3) contracting by regulation – don't really negotiate terms and conditions; and (4) regulations concerning intellectual property.

4. Are other agencies using this authority? If yes, why? If no, why?

Yes, DHS/TSA, NASA, FAA, DOT, DOE, IARPA, HHS, DOI... They are using this authority because of its flexibility and to attract the best resources. Agencies are using this authority for different reasons. For example, FAA has their own acquisition management system and uses the authority for airlines and airports.

APPENDIX C. INTERVIEW WITH RICHARD DUNN, EXPERT CONSULTANT, NATIONAL SECURITY TECHNOLOGY ACCELERATOR, NATIONAL DEFENSE UNIVERSITY

A. Historical:

1. What was the role of DARPA's Contract Management Office in creating and advancing Other Transaction (OT) authority within the Department of Defense?

With respect to creation, the DARPA CMO was not involved. In May 1988, a letter was sent to the Pentagon with concerns that the government was not attracting the best and the brightest. This was sent to DARPA and came to my attention. I said that they (DOD) couldn't do what they wanted to do with the current authority. At the time, I worked as General Counsel at DARPA.

At the time, the Chair of the Senate Armed Services Committee (SASC), Senator Nunn, met with the Director of DARPA. I worked directly with congressional staffers on the original legislation. I really wanted OTs to become a routine part of doing business with DARPA. I thought CMO should be directly involved in advancing OT. The then Director of CMO, Ron Register, was supportive of doing things differently and was supportive of getting OTs established at DARPA.

2. What changes have been made with OT authority over the years? How has the language and the law changed?

The original authority was granted in November 1989 with the Fiscal Year 1990 National Defense Authorization Act (NDAA) under Section 10 of United States Code 2371 and was granted to DARPA only. The authority was then amended to include all military departments and then was amended with Section 845 that specified prototype authority.

The Federal Grant and Cooperative Agreement Act clarified procurement contracts versus assistance instruments such as grants and cooperative agreements. Procurement contracts were for goods and services while grants and cooperative agreements were for a public purpose.

In the Science and Technology field, the government is not procuring products, the major goal is to advance state of the art. There is a need to engender collaboration.

The 2000 NDAA introduced the requirement for cost sharing. The original authority did not have the requirement for cost sharing.

There is also a significant change with the language that defines what OTs can be used for. It used to be specific to “weapons and weapons systems” but now has a broader definition and is closest to what was originally intended. To track the changes, go to 10 U.S.C. 2371, the actual code, and in the notes to section 2371, you can track the amendments.

3. What was the impetus behind the need for OT authority?

See answer to question #1. I interned at the Apollo Command and Procurement office in Houston and noted that procurement there didn’t look like procurement anywhere else. I became interested in understanding “Why do we do things in the way we do things in the government?” You get restrictions from the FAR.

There is good information in the February 2007 LMI Consulting study titled “An Analysis of Special Instruments for Department of Defense Acquisition and Assistance: Other Transactions for Prototype Projects and Technology Investment Agreements” which I will send.

4. Has availability of this authority increased the number of contractors proposing on Research & Development efforts?

This authority definitely helped to grow the R&D base at that time. There was a technology reinvestment project which was a multi-party consortium project. Unfortunately, 2006 was the last annual report to Congress. DARPA received the initial authority and Gazelle Microsystems was the first OT agreement signed and executed.

5. How long did it take to get the authority for DOD?

The original authority was crafted very quickly and enacted in 1989.

6. What “non-traditional” companies has this authority attracted?

From the smallest to the biggest companies, this authority attracted interest. Industry created a group called the “Integrated Dual-use Commercial Companies (IDCC)” whose purpose was to promote use of OTs in R&D contracting. Firms such as DuPont, Monsanto, and 3M spent billions on their own R&D. I will send briefings from IDCC meetings.

7. What stakeholders were involved in crafting the OT authority?

As mentioned earlier, I worked with Congress to craft the original OT authority. The driving force was on the Senate side with Senator Nunn and Senator Bingaman of New Mexico championing OT authority. Senator Warner also was an advocate of this authority.

8. Have any responses been received from industry on this authority?

Refer to IDCC briefings and 2007 LMI study.

B. Current State of OT authority and law:

1. What is the current state of OT authority under the 2016 National Defense Authorization Act?

The current state of OT authority under the 2016 NDAA is that the OT for prototype authority has been made permanent. There is also simplified provisioning for follow-on production.

2. How does the current state differ from previous NDAA's?

The notion of cost-sharing is retained which emphasizes the role of the non-traditional contractor. In a general sense, there is now a broader definition of "non-traditional" contractor and the terms for follow-on production has changed. The major change is that this authority is no longer temporary, it is permanent.

I would take a different approach to cost-sharing as this can disincentivize traditional companies from working in OT arrangements.

3. What Department of Defense agencies use this authority?

I believe OT authority is being used by DARPA, the military services, the Missile Defense Agency (MDA), and the Defense Threat Reduction Agency (DTRA).

4. Do any socioeconomic policies apply to OT's?

OT agreements still have to comply with any laws with respect to doing business in the United States. For example, companies still have to comply with Title IV of the Civil Rights Act and export control laws. However, with respect to set-aside requirements or small business goals, there are no set aside requirements or small business targets.

5. Are there any legal recourses in cases of a competitive OT in which a contractor might dispute the evaluation criteria - Is this an issue? Can you sole source? Have any legal issues arisen from these types of arrangements?

OT agreements are not protestable in the same sense that traditional procurement contracts are protestable. They are not protestable under GAO

because OTs are not subject to CICA. I know of one TRP project that complained but the government prevailed. GAO has rejected protests of OTs.

6. What clauses are traditionally included in OT arrangements? How do these clauses differ from traditional FAR based contract clauses?

I fought against having a model OT agreement but both industry and government wanted a model. Clean sheet paper contracting is hard. After the initial Gazelle agreement garnered so much press, there was a rule that all OTs were to be sent to DPAP for approval. Clauses should be second to achieving the objectives of the parties. It is more important to get people in a room to agree on objectives before actually negotiating the agreements. One clause that is important is foreign access to technology.

7. Are OTs subject to the same bid protest regulations?

No, because OTs are not subject to the Competition in Contracting Act (CICA).

8. What training is available for 1102s on OT's?

Not enough. I gave a course for the Army at Picatinny Arsenal about a year ago. DAU has a couple of online courses that are outdated.

C. Efficacy (is the authority working):

1. Is there a way to quantify the benefits of using this authority?

At one point, there was a DD Form that was required to be filled out on each prototype project in an attempt to gather metrics. There are tangible benefits other than monetary benefits. Refer to "The Army Lawyer" article and the Coopers and Lybrand study.

2. Do you have any examples illustrating benefit of using OT?

With Gazelle, there was an opportunity to earn royalties and with the TRP, industry was coming from all over the country to participate.

D. The Path Forward:

1. What implications do the recent changes per the 2016 NDAA on OT have for DOD going forward?

The 2016 NDAA made the authority permanent; therefore, this takes away the excuse that the authority is temporary. The authority is permanent and streamlined and really serves as congressional endorsement of the authority. Follow-on production is streamlined. This language has overcome the narrow scope of “weapons and weapons systems.”

2. What are advocates’ point of view for using OT authority? What are opponents’ point of view on using OT’s?

Advocates believe that DOD is heavily regulated and has expensive, non-value added processes. Before World War II, there were very few companies with a defense base. Post WWII, industries such as those dealing with nuclear or jet engines became a monopoly with the military.

Opponents point to a lack of oversight and a lack of controls or safeguards although the notion of whether these safeguards actually safeguard hasn’t yet been tested. The culture is not conducive to using OTs. Refer to my 2009 paper for specific examples such as the Future Combat System (FCS).

3. What are the potential benefits and risks of using this authority?

See answer to question #2 above.

4. Are other agencies using this authority? If yes, why? If no, why?

Yes, DHS/TSA, NASA, FAA, DOT, DOE, IARPA, HHS, DOI... Refer to CRS L. Halchin report.

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LIST OF REFERENCES

- About the Department of Defense. (n.d.). Retrieved from Department of Defense:
<http://www.defense.gov/About-DOD>
- Cassidy, S. B., Plitsch, J., & Barclay, S. (2013, Spring). Another option in a tightening budget: A primer on Department of Defense “Other Transactions” agreements. *The Procurement Lawyer*, 3–12.
- Dunn, R. (1992, March 17). Agreements authority and key defense acquisition strategies. Memorandum for the Director, Defense Advanced Research Projects Agency, Arlington, VA.
- Dunn, R. (2009). *Injecting new ideas and new approaches in defense systems – Are “Other Transactions” an answer?* Report no. NPS-AM-09-030. Excerpted from *Proceedings of the 6th Annual Acquisition Research Symposium* of the Naval Postgraduate School, vol. II, Defense Acquisition in Transition.
- Fike, G. (2009, July). Measuring “Other Transaction” authority performance versus traditional contracting performance: A missing link to further acquisition reform. *The Army Lawyer*, 33–43.
- Frequently asked questions. (2016, June 9). Retrieved from SBIR/STTR Web Portal:
<https://sbir.defensebusiness.org/faqs>
- Greenwalt, B. (2014, April 25). Build fast, effective acquisition: Avoid the system we’ve got. Retrieved from Breaking Defense: <http://breakingdefense.com/2014/04/build-fast-effective-acquisition-avoid-the-system-weve-got/>
- Gunasekara, S. G. (2011, Summer). Other Transaction authority: NASA’s dynamic acquisition instrument for the commercialization of manned spaceflight or Cold War relic? *Public Contract Law Journal*, 40(4): 893–909.
- Halchin, L. E. (2011). *Other Transaction (OT) Authority*. CRS report RL34760. Washington, D.C.: Congressional Research Service.
- Kuyath, R. (1998). Intellectual Property Rights Under Department of Defense “Other Transactions.” Publisher unknown.
- McCain, J. (2005). Army transformation and the future combat system. Opening Statement of Senator John McCain, Chairman, Subcommittee on Airland.
- Obama, B. (2015). *National security strategy*. Washington, D.C.: The White House.

- Office of the Inspector General, Department of Defense. (1997). *Audit report: Award and administration of contracts, grants, and other transactions issued by the Defense Advanced Research Projects Agency*. Arlington, VA: Author.
- Office of the Inspector General, Department of Defense. (1998). *Audit report: Financial and cost aspects of other transactions*. Arlington, VA: Author.
- Office of the Inspector General, Department of Defense. (1999). *Audit report: Cost charged to other transactions*. Arlington, VA: Author.
- Smith, G., Drezner, J., & Lachow, I. (n.d.). Assessing the use of “Other Transactions” authority for prototype projects. RAND. National Defense Research Institute.
- Tama, J. (2015, April 12). Thornberry’s bill a good start on acquisition reform. Retrieved from Defense One: <http://www.defenseone.com/ideas/2015/04/thornberrys-bill-good-start-acquisition-reform/109879>
- Ulrey, S. (2016, April). Other transactions for prototypes [PowerPoint slides]. Presented at a DARPA business conference, Atlanta, GA.
- United States General Accounting Office. (1996). *DOD Research: Acquiring Research by Nontraditional Means*. Washington, D.C.: Author.
- United States Government Accountability Office. (2016). *Federal acquisitions: Use of ‘Other Transaction’ agreements limited and mostly for research and development activities*. Washington, DC: Author.

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