
# Other Transaction Agreements for Basic, Applied and Advanced Research in the Department of Defense

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## Approval Page

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**Abstract**

Traditional contracting in the Federal Government is laborious and time consuming, largely due to the amount of statutes, regulation and policy. This results in the manifestation of large amounts of documentation on the procuring organization as well as potential contractor prospects. Traditional contracting adds additional burden in cost accounting and reporting unique to the Federal Government. While traditional contracts have served the Government well, in cases of relatively mature technology and the objective system requirements were well defined, their lack of flexibility is cited as an inhibitor to the Government gaining access to emerging commercial technologies.

Research suggests that the Department of Defense, among other federal organizations, do not use Other Transactions Authority fully because of lack of understanding and education on how to implement Other Transactions (Dunn R. L., 2017). The Department of Defense has issued guidance on OTs for Prototype Projects, however, explicitly states that it does not cover OTs for basic, applied and advanced technology research. This indicates a significant gap in the usage of this agreement mechanism in the formative stages of a technology. This research paper builds on the body of knowledge for OTs and provides a perspective for consideration on OTs for DoD research.

# Introduction

## Background

An article written by Richard L. Dunn in May of 2017, titled “Other Transactions Contracts: Poorly Understood, Little Used”, highlighted the Department of Defense’s lack of understanding and education on the pragmatics of utilizing Other Transactions (OTs) and therefore the benefits this procurement option yields. While research conducted on the historical use of OTs in the Department of Defense, little exists in the form of guidance on how to determine when it is appropriate to use OTs and how to structure and implement such an agreement (Dunn R. L., 2017).

Many resources exist which analyze the DoD’s use of OTs to include reports, articles and investigations. The body of knowledge, however, lends more focus towards OTs for prototype projects’ historical performance and implementation. This research paper focuses on OTs for basic, applied, and advanced research projects. The research further addresses OTs applications, criteria and structure in order to provide DoD administrators with a perspective on administering these types of OTs.

Authorized by Congress, Other Transaction Authority is the authority granted by the National Defense Authorization Act, Other Transaction Agreements or Other Transactions are the written agreement that describes the activities to be performed. For the purpose of consistency, this paper refers to Other Transaction Agreements as OTs.

**Purpose & Significance of the Study:**

The purpose of this research is analyze existing research, reports and investigations of OTs for prototype projects and to inform Department of Defense officials on the development of "Other Transactions" for basic, applied, and advanced research projects. While OT development for research projects is likely to vary wildly, the hope this research will serve as a jumping off point with cross-references to excellent sources of additional information that will stem further exploration into this subject. The bulk of primary research and development (R&D) in the United States occurs in the private sector and is trending upward. Conversely, R&D in the federal government has decreased over the years (Halchin, 2011) as depicted in Figure 1.

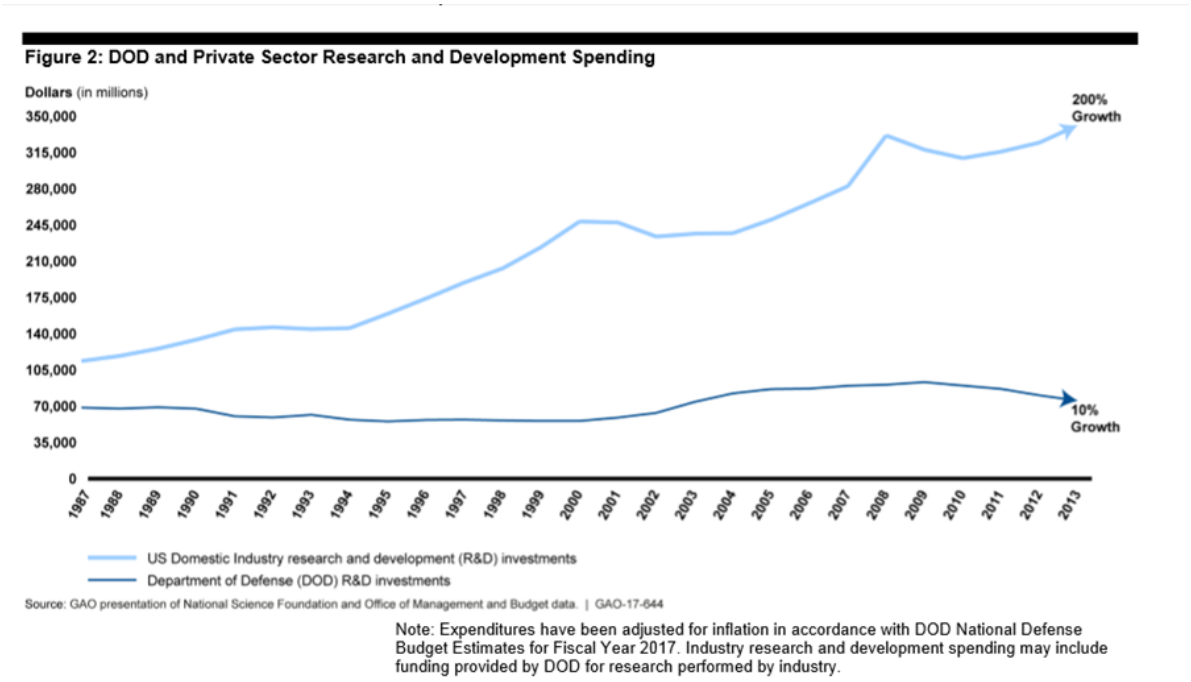


**Figure 1 - DoD and Private Sector Research and Development Spending**

**(United States Government Accountability Office, 2017, p 6)**

During a speech by U.S. Air Force Gen. Paul J. Selva, to attendees of a Military Strategy Forum in Washington, D.C., Aug. 25, 2016, he highlighted his lack of confidence in the Defense sector to keep up with technology development (Pomerleau, 2016). OTs are a mechanism to streamline procurement activities in areas of innovation however OTs are "Poorly Understood, [and] Little Used" (Dunn R. L., 2017).

This research explores the authorities granted, criticisms of their use, and OT processes. The research offers considerations for developing and executing OTs for basic, applied and advanced research projects to obtain the best that the commercial industrial complex has to offer. This paper leans on the research to date on OTs in order to further understanding that will stimulate leaders to consider use of OTs for basic, applied and advanced technology projects in the Department of Defense to regain access to technology ions.

The Deputy assistant of Defense for Manufacturing and Industrial Base Policy (DASD(MIBP) and the Director DPAP and ASD (R&E) published "Other Transactions (OT) Guide for Prototype Projects in January 2017. This guide's primary purpose is to assist "Agreement Officers in the negotiation and administration of OTs… for prototype projects." (Defense, U.S.O., 2017)

**Problem Statement**

Congress has recognized the need for alternative approaches to procuring technology in research and development through the implementation of Sections 2371, 2371b and 2373 of Title 10 United States Code. While the National Defense Authorization Act language describes Other Transaction Authorities, the NDAA lacks instructional guidance on how to implement OTs. Although some organizations have effectively implemented the use of OTAs, many organizations do not have a good understanding of the mechanics of the OT

process. This research will explore criteria, application and use of OTs for Science and Technology Programs.

**Research Question**

Congress has granted the Department of Defense authority to use OTs for basic, applied and advanced technology projects, yet there is little understanding and experience in executing them in the Department of Defense. Neither is there a guide available to assist a project lead in beginning, implementing and executing OTs for basic research (Dunn R. L., 2017).

Leaning heavily on the research done on OTs for Prototype Projects while observing the lack of specific guidance for implementing Ots for basic, applied and advanced technology, poses the following question:

What actions can DoD take to support the program manager and contracting officer in the selection, application and effective execution of OTs for basic, applied and advanced technology projects?

## Research Methodology

**Research Process**

This research addresses the body of information online, to include other transaction guides written over the years, studies on OTs and reports and analysis of third party organizations on the use of OTs. The objective of the research is to review, analyze, and understand the OTs from a structural perspective and offer an approach to implementation of this method.

Without access to a database of previously developed OTs, the focus will be guidance provided in statute and research previously conducted on this subject.

### Limitations

This research is limited to free online research sources available to the public. This approach selected due to the time constraint limitation of five months to conduct the research, analyze the data, write the findings, obtain the prerequisite reviews and gain approval of the final product.

## Literature Review

The purpose of this literature review is to explore Other Transactions, the need for OTs, and how federal agencies have implemented them to meet R&D needs.

### Notable Studies

#### Other Transaction (OT) Authority Examined

A Congressional Report Service report written by L. Elaine Halchin discusses the history of the use of OTAs and an evaluation of their effectiveness. Halchin cites the challenges to evaluate the use of OTA because Federal Acquisition Regulation does not bind them. Because of this, and the broad statute language, execution varies depending on the agency employing their use. Ms. Halchin further cites that "generally, the reason for creating OT authority is that the government needs to obtain leading edge R&D (and prototypes) from commercial sources, but some companies (and other entities) are unwilling or unable to comply with the government's procurement regulations" (Halchin, 2011, p. Summary).

#### An analysis of the Department of Defense's use of other transaction authority

Catherine L. Stevens, Naval Postgraduate School, offers an approach to evaluating Other Transactions through use of the "Three Integrative Pillars of Success (TIPS©) analytical framework model, created by E. Cory Yoder. TIPS enables analysis of data in terms of personnel, platforms, and protocols (Stevens, 2016). The research focuses on the evolution of

OTA from a statutory perspective, the implications of OTA's use in the Government and an examination of the views of advocates and critics (Stevens, 2016).

**Another Option in a Tightening Budget: A Primer on Department of Defense "Other Transactions" Agreements**

Susan B. Cassidy, Jennifer Plitsch and Stephanie H. Barclay address the advantages offered by Other Transaction Agreements through engagement of non-traditional performers in the Government Market. Cassidy, et al examines data rights, payment structure, patent rights, and other undefined considerations that OTA's need to include. Written by three practicing lawyers from the law firm Covington & Burling LLP, the article gives a legal perspective to the execution of OTA and offers considerations to those entering into these types of agreements (Cassidy , Plitsch , & Barclay, 2013).

**Injecting new ideas and new approaches in defense systems- are "Other Transactions" an answer?**

Dunn examines whether changes in culture coupled with strong leadership can overcome some beliefs that the Governmental market will benefit significantly from incorporating the skills of the private sector marketplace. Mr. Dunn explores Other Transaction Authorities to solve defense acquisition shortcomings and increasing innovation to satisfy the research and development needs of the Department of Defense (Dunn R. L., 2009). His goal is to explore OTA's as a rational procurement avenue to open the aperture of innovation and take advantage of the vast industrial complex within the United States (Dunn R. L., 2009).

**Measuring "Other Transaction" Authority Performance Versus Traditional Contracting Performance: A Missing Link to Further Acquisition Reform**

Major Gregory J. Fike, Staff Judge Advocate of the Air Force Office of Scientific Research in 2009, examines issues surrounding the tracking of metrics and data to substantiate the effectiveness of using OTA's. Fike delves into difficulties in establishing metrics to assess OTA execution. He offers suggested enhancements to execution approaches that will add rigor, transparency and metrics of comparison similarly found in traditional contracting (Fike, 2009).

**Other Transactions guide for Prototype Projects**

This DoD guide, published in 2017 by the Under Secretary of Defense for Acquisition, Technology and Logistics, provides DoD Government teams with guidance for structuring OT Agreements for Prototype Projects only:

> "by Department of Defense (DoD) Authorization Acts with sunset provisions and are found in the U.S. Code as a Note in 10 U.S.C. 2371. Section 845 of Public Law 103-160, as amended, authorizes the use of OTs, under the authority of 10 U.S.C. 2371, under certain circumstances for prototype projects directly relevant to weapons or weapon systems proposed to be acquired or developed by the DoD". (Defense, U.S.O., 2017, p. 2)

While this guide does not apply to basic, applied or advanced research, the guide offers insight to structure analysis for programs in the early stages of technology advancement (Defense, U.S.O., 2017)

**Adaptive Acquisition: An Evolving Framework for Tailoring Engineering and Procurement of Defense Systems**

Chris Gunderson, from the Air Force Institute of Technology Department of Systems engineering and management, interprets best practices of procurement approaches in order to focus on tailored contracting solutions that maximize value and reduce development timelines (2017). His conclusions favor situationally dependent and ever adapting procurement strategies

over the traditional linear timelines to maintain pace with ever changing technological advancements (Gunderson, 2017).

**United States Government Accountability Office Federal acquisitions: Use of 'Other Transaction' agreements limited and mostly for research and development activities.**

This government accountability report examines 11 federal agencies granted authority to use "Other Transactions". The report provides an assessment of the reasons the agencies are using other transactions in lieu of traditional procurement methods for specific project categories. The GAO compared different types of research conducted under OTs for fiscal year 2010- 2014 and captured perspectives of various agency officials on agency guidance (United States Government Accountability Office, 2016).

**United States Government Accountability Office: Acquiring Research by Nontraditional Means**

In this 1996 report to congressional committees, the Government Accountability Office focused on the use of Other Transactions and cooperative agreements to enhance the development of research efforts. These enhancements stem from DoD's desire to reduce barriers of integrating private sector participation into Defense projects. The DoD also encouraged new practices in the defense sector that will enhance and strengthen relationships with the civilian sector. Lastly, the DoD sought to leverage commercial investments and encourage the use of commercial products for application in Defense systems. The report focuses on the types of instruments used and the instruments' structures (Schinasi , Katherine V; DiNapoli , Timothy J; Cole, Edward D;, 1996).

**Other Transaction Authority: Flexibility at the Expense of Accountability**

In this Hearing before the Subcommittee on Emerging Threats, Cybersecurity and Science and Technology before the 110th Congress, testimony from Thomas W. Essig, Chief

Procurement Officer, Department of Homeland Security and others to address two primary questions. "First, is OTA premised on sound policy, and, second, given the incredible flexibility granted under OTA, are there adequate protections in place to reduce or eliminate any potential abuses?" (U.S. Congress, 2008, p. 2). The intent of this committee was to determine if Other Transactions were being executed with robust oversight (U.S. Congress, 2008).

## Basis for Studies

### The Government bypasses traditional acquisition when it needs innovation and speed.

When the federal government wants to build inexpensive systems in an expedited fashion, the federal government can bypass traditional processes. Innovative basic research projects started in the 1960's eventually led to internet technologies, missile defense deployment in the 2000's, and the development of Mine-Resistant Ambush Protected vehicles -- all through accelerated acquisition processes. One such alternative approach, which warrants "immediate consideration and expansion", is Other Transaction Authorities (Greenwalt, 2014).

### Cost of traditional acquisition Processes

Previously conducted Department of Defense studies reveal that the organization spends as much as 20% of project budget for the administrative process. The Defense Advanced Research Projects Agency (DARPA) has had positive experience in utilization of OTs in advanced technology projects, while many DoD organizations have shied away from using OTs because their officials do not understand them and are resistant to change. (Dunn R. L., 2017)

### Loss of market share and Limited implementation of OTs compared to other Agencies

The Government no longer leads the nation's Research and Development. The market share dropped by 51% between 1953 and 2000 as identified in a National Science Foundation study (Halchin, 2011). There are increasing concerns that the Government cannot keep up with pace of technology advancements.

The following is a table from a 2016 Government Accountability Office Report describing the Number of Active Other Transaction Agreements by Agency, Fiscal Years 2010 through 2014.

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

[a]ARPA-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.

**Figure 2. Number of Active Other Transaction Agreements by Agency, Fiscal Years 2010 through 2014. (Government Accountability Office, 2016, p 27)**

**The need to Adapt to more streamlined approaches to innovation**

Former DARPA Technology Chief, Kaigham (Ken) Gabriel (2016) supported concerns of the Government's fallen market share, through reference to encryption technology, stating the

> "private sector's ability to move with a "[a lot of] speed, energy and economic power" and "The days when government could leapfrog encryption with federally funded or defense-funded technologies are gone" (Baker, 2016)

Underutilized technology advancements around the world are affecting the capability of the US Military and the Government no longer leads real technology change. These changes are taking place in the private sector (Pomerleau, 2016)

**Brief History**

Other Transaction Authority initiated with the National Aeronautics and Space Administration (NASA) following the National Aeronautics and Space Act of 1958. The Government officials recognized the need to obtain cutting edge Research and Development technology (Halchin, 2011). Over the years, the authorities expanded to additional agencies in the federal Government and modification to the statutory language reflected Congress' commitment to enhance the federal Government's technical prowess (United States Government Accountability Office, 2016). The table below from the Director, Defense Pricing/Defense Procurement and Acquisition Policy website describes briefly the statutory changes to Other Transactions between 1958- 2015. Many of these changes are identified in the National Defense Authorization Act (NDAA) over the years.

| **Year** | **Congressional Authorization** |
|---|---|
| 1958 | OTA authority originated with the passage of the National Aeronautics and Space Act |
| 1989 | OTA authority is codified for Defense Advanced Research Project Agency (DARPA) in 10 U.S.C. 2371 for "advanced research projects" only |
| 1993 | Sec 845 of NDAA FY94 expands DARPA's authority to include "prototyping" |
| 1996 | Sec. 804 of NDAA FY97 authorizes OTAs for others in DoD |
| 1997 | Sec 832 of NDAA FY98 added subsection (i) for protection of information from disclosure |
| 2000 | Sec 803 of NDAA FY01 introduces cost-sharing and nontraditional defense contractors |
| 2001 | Sec 822 of NDAA FY02 created follow-on production authority |
| 2002 | "Nontraditional defense contractor" is defined in NDAA FY03 |

| | |
|---|---|
| 2003 | NDAA for FY04 removes requirement for submitting annual reports to Congress after FY 2006 |
| 2008 | Sec 823 of NDAA FY08 extends DoD's OT authority through September 30, 2013 |
| 2013 | Sec 863 of NDAA FY13 extends DoD's OT to September 30, 2018 |
| 2014 | Sec 812 of NDAA FY15 broadens scope and exempts small business from cost sharing |
| 2015 | Sec 815 of NDAA FY16 codifies 10 U.S.C. 2371b and rescinds authority under Sec 845 |

**Figure 3, Other Transactions Authority (OTA) Statutory Timeline. (Director, Defense Pricing/Defense Procurement and Acquisition Policy, nd).**

**Statutory Guidance**

The statutory language listed in Title 10 U.S. Code explains the differences and authorities granted for both sections.

> 10 USC 2371 – Research projects: transactions other than contracts and grants
>
> "… The Secretary of Defense and the Secretary of each military department may enter into transactions (other than contracts, cooperative agreements, and grants) … A cooperative agreement containing a clause under subsection (d) or a transaction authorized by subsection (a) may be used for a research project when the use of a standard contract, grant, or cooperative agreement for such project is not feasible or appropriate…" (Gunderson, 2017, p. 18)
>
> 10 USC 2371b - Authority of the Department of Defense to Carry out Certain Prototype Projects
>
> "… Secretary of Defense may, … carry out prototype projects that are directly relevant to enhancing the mission effectiveness of military personnel and the supporting platforms, systems, components, or materials proposed to be acquired or developed by the Department of Defense, or to improvement of

> platforms, systems, components, or materials in use by the armed forces…. for a prototype project … not in excess of $250,000,000 upon a written determination by the senior procurement executive … (that) use of the authority of this section is essential to promoting the success of the prototype project… To the maximum extent practicable, competitive procedures shall be used when entering into agreements to carry out projects … prototype project may provide for the award of a follow-on production contract or transaction … without the use of competitive procedures, … if … competitive procedures were used for the selection … in the transaction; and the participants…. successfully completed the prototype project …" 2371 was originally enacted in 1989 and Section 2371b prototype authority in 1993. Like 2371, with which it is closely related, it was originally specific to the Defense Advanced Research Projects Agency but later extended to all of the Defense Department". (Gunderson, 2017, pp. 18-19)

Because of the uniqueness of OTs for basic, applied and advanced technology agreements, some organizations classify them as non-acquisition since they are not technically a contract. When breaking down the OTs against other contracting approaches, DARPA has created the following table to describe the statutes and uses.

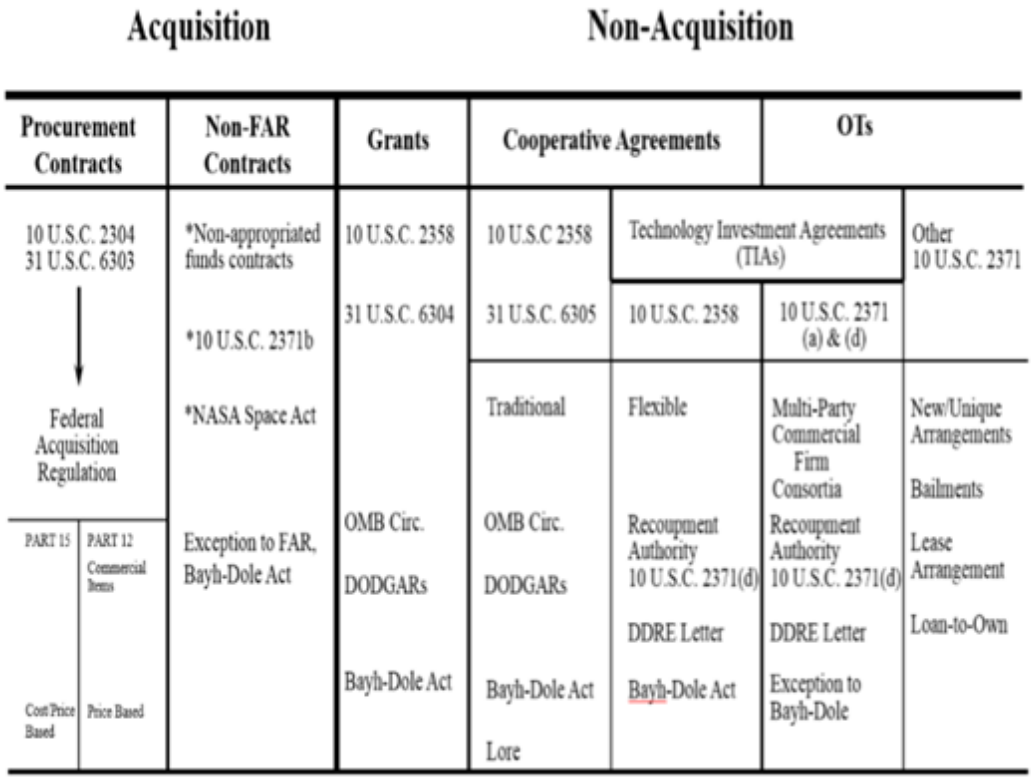


**Figure 4. Contracting Tool Box. Source: DARPA (2015). (Stevens, 2016, p. 2)**

## Analysis & Findings

### Research Categories and Appropriate Agreements

In order to examine the types of Other Transactions, OTs need classification across the Budget Activity (BA) Codes. “RDT&E budget activities are broad categories reflecting different types of RDT&E efforts” (Defense, Comptroller U. S. O, 2017, p. 3) and are traceable to authorities granted in the appropriation for each project. Budget Activities (BA) define developmental criteria based on milestone events in the development of systems within the Government. The Budget Activity helps to make a decision on the appropriate type of Transaction to use such as a basic, applied, advanced technology or a prototype project and draws a logical path to the appropriation categorization. The language in both guidance and

statute, coupled with no clear definition of “prototype”, leaves the selection of the type of transaction up to interpretation. The figure below describes the differences in the Budget Activities within RDT&E relevant to OTs. Some key words highlighted provide support to a simplified difference between the different Budget activities.

| | DoD Financial Management Regulation (Volume 2B, Chapter 5, pp 4-5) | |
|---|---|---|
| BA 1 | Basic Research (6.1) | Basic research is systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications towards processes or products in mind. It includes all scientific **study and experimentation** directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs… |
| BA 2 | Applied Research (6.2) | Applied research is systematic study to understand the means to meet a recognized and specific need. It is a systematic expansion and application of knowledge to develop useful materials, devices, and systems or methods. This type of effort may vary from systematic mission-directed research beyond that in Budget Activity 1 to sophisticated **breadboard hardware**, study, programming and planning efforts that establish the **initial feasibility** and practicality of proposed solutions to technological challenges. It includes studies, investigations, and non-system specific technology efforts… |
| BA 3 | Advanced Technology Development (6.3) | This budget activity includes development of subsystems and components and efforts to integrate subsystems and components into system prototypes for field experiments and/or tests in a simulated environment. Budget Activity 3 includes concept and **technology demonstrations** of components and subsystems or system models… |
| BA 4 | Demonstration and Validation (6.4) | Efforts necessary to evaluate integrated technologies, representative modes, or **prototype systems** in a high fidelity and realistic operating environment are funded in this budget activity… |

**Figure 5. Figure created from DoD Financial Management Regulation. (Defense, Comptroller U. S. O, 2017, pp. 4-5)**

The following table is a generalized alignment of US Code Title 10 for Other Transactions to DoD Budget Activities.

| Department of Defense | Other Transaction Authority as currently enacted (Sept, 2015) | Public Law providing Initial authorization | Budget Activity |
|---|---|---|---|
| For research, development and demonstration activities | 10 U.S.C. § 2371 | Pub. L No. 101-189 § 251 (1989) | BA 1 |
| | | | BA 2 |
| | | | BA 3 |
| For prototype projects | 10 U.S.C. § 2371 b | Pub. L No. 103-189 § 251 (1989) | BA 4 |

**Figure 6. Recreated with appended Budget activity reference. Agencies Authorized to Use Other Transaction Agreements and their Statutory Authorities. (United States Government Accountability Office, 2016, p. 35)**

10 USC 2371 grants the Secretaries of Defense and each department of the military the authority to enter into OTs for the execution of projects in basic, applied, or advanced research. This Other Transaction Authority is unique to existing authorities such as contracts, cooperative agreements, and grants (Gunderson, 2017). This authority is separate from the authorities granted in 10 USC 2371b, which is for Prototype Projects. The authority for OTs for basic, applied and advanced technology is an acceptable approach in cases where the activity is not a Prototype, Grant, or Cooperative Research and Development Agreement. Examination of the types of acquisition options will assist in determination of the appropriate vehicle to consider.

**Prototype Project**

"The term "prototype" in not defined by statute, but is generally interpreted to mean any virtual or physical design model of a technology or process used to evaluate engineering solutions" (Gunderson, 2017, p. 21). Additionally, the DoD Other Transactions (OT) Guide for Prototype Projects describes a Prototype as "…a preliminary pilot, test, evaluation, demonstration, or agile development activity used to evaluate the technical or manufacturing feasibility or military utility

(Defense, U.S.O., 2017, p. 4). In general, development of a sub-component of a system for example a lens, structural frame, coating, etc. are not categorized as a prototype.

**Grants**

Grants are legal instruments not focused on transfer of property or services but rather the transfer of a thing of value, which focuses on subjects beneficial the public or direct benefit to the Department of Defense. A Grant differs from cooperative agreement in that the federal organization issuing the grant plays almost no role in the execution (U.S. Congress, 2018)

**Cooperative Research and Development Agreement (CRADA)**

Cooperative Research and Development Agreement is a legal instrument between a DoD organization and a non-federal organization where the use of personnel, services, facilities, equipment or other resources are negotiated to conduct a research project of mutual interest to both parties. These agreements, however, do not include transfer of funding from the Government to the non-federal entity (U.S. Congress, 2018).

**Cooperative Agreement**

Per Title 10 U.S. Code § 2350a, the Secretary of Defense can engage in a legal agreement with a foreign organization for the purposes of advanced research and development. The focus of these is improved conventional defense capabilities through a joint development, cost sharing and jointly beneficial scope of effort (Congress., 2018).

**Criteria and Justifications for OT usage**

In general, research suggests that traditional contracting for basic, applied and advanced technology has limitation due to the lack of qualified requirements. The maturity of the technologies or scientific phenomenon, at these stages, inhibits a detailed understanding and

knowledge at the scientific level. In previous investigations, the DoD Inspector General has commented on the failure of Agreement Officers "to properly document justification for using other transactions" (US Congress, 2008, p. 14). A RAND Corporation study developed research criteria for the determination of the appropriateness of using an OT in 2002. Their findings suggest the appropriateness to use OTs applications if the scope of the effort meets one of the following criteria (Smith, Drezner, & Lachow, 2002).

Additional criteria created by Chris Gunderson in his adaptive acquisition Framework in 2017 suggested justification for using an OTs as well. Below is a combined list of justifications to assist as rationale for selection of OTs as the proper path forward.

- "When DoD desires access to technology that is predominantly the result of commercial development, OT provides a mechanism for nonintrusive, value-added participation"
- "When there is considerable, uncertainty regarding both performance goals and what is technically achievable and affordable, OT provides the necessary flexibility to manage high-risk projects"
- "When DoD might benefit from innovative business relationships with industry, or among industry participants, OT provides the mechanism to define those relationships" (Smith, 2002, p 33).
- "When DoD desires to "conduct open ended basic and applied research with elite commercial and/or academic partners"
- "When the DoD desires to "conduct Research, Development, Test & Evaluation (RDT&E), certification, and then transition perishable technology to manufacturing and distribution before it is superseded by the next generation"

- "When the DoD desires to broadcast broad requirements to an "unknown market of innovative solution providers"
- "When the DoD desires to "establish especially close government-industry partnership with trusted firms"
- "When the DoD desires to "equitably share developmental risk with industrial partners"
- "When the DoD desires to "conduct adaptive, evolutionary S&T and RDT&E, i.e. each preceding discovery impacts subsequent procurement approach"
- "When the DoD desires to "evaluate alternative procurement governance models for potential incorporation into the FAR"
- "When the DoD desires to "employ non-traditional incentive models, including with respect to IPR, not feasible under the FAR, for any of the above, or any other legitimate purpose. " (Gunderson, 2017 p. 21)

**Government Team Formation**

Concerns from Congress have risen that the flexibility associated with OTs and the alleviation from Federal Acquisition Regulation leaves concerns over accountability and potential for abuse. Lack of sufficient documentation including cost proposal review and actual cost accounting, in the past, have been cited failures during the administration of OTs (U.S. Congress, 2008).

The desire to attract non-traditional companies to facilitate faster and cheaper development of technological base, still important to ensure documentation and transparency

being an upmost priority so that proper use of the federal tax dollars are preserved. (U.S. Congress, 2008).

**Types of research**

As a first step in establishing the basis for the OTs, consider detailed description of the type of research in order to frame the content of the agreement. This not only defines context of applicability to using an OT vice other methods but will help to ensure the scope of the work within the agreement remains focused and clearly defined.

Descriptive research: This includes investigation into the current state of an environment, process or functionality of a system both physical and conceptual. In this research, the objective is to define the current forces, variables, inputs and outputs of the system. The researcher remains unbiased by design in order to document the reality of the system's current state. Deliverables will like include reports, studies or correlated surveys (Kothari, 2004)

Analytical research: This research includes performing critical evaluation of data already available to evaluate performance or functionality of a system. Deliverables will likely include comparative reports or statistical performance studies, which describe the system functionality, performance or interfaces (Kothari, 2004).

Quantitative research: This research includes the quantification of results relative to phenomenological events. These include discovery of materials or processes that yield new outcomes that have utility for use in applications of systems or components. Deliverables may include material or process application designs, approaches, or schematics that apply to the improvements of larger functionality of systems or data processing (Kothari, 2004).

Applied research: This research focuses on finding a solution to an existing problem. While there are unknown environmental factors, the constraints are substantially understood. The operational environment, system performance conditions and obstacles the research aims to

solve are characterized to some degree. Deliverables may include components, subsystems, experimental data or testing results (Kothari, 2004).

Advanced technology Research: This research includes the demonstration of a subsystem, component or process with the intentional goal of integrating into a prototype. Deliverables may include components, subsystems, or testing results (Defense, Comptroller U. S. O, 2017). The distinction in the type of research conducted will form the basis for the justification of the strategy used and serve as documentation for use of appropriate statutory guidance.

**Emphasis on appropriate team to implement OTs**

To be successful in enhancing the implementation of OTs is going to require a change in culture. Richard Dunn in his research paper to the 6th Annual Acquisition Research Symposium said:

> "It is clear that leadership and vision, culture change, getting rid of the deadwood (both unnecessary regulation and business as usual "just say no" personnel), and learning and incorporating the skills needed in the globalized, commercial market-place are the essentials to creating an acquisition system that meets 21st Century needs." (Dunn R. L., 2009, p. 28)

Other Transaction Authority granted to the Department of Defense workforce in 1996 with minimal use to date (United States Government Accountability Office, 2016). Primarily trained in traditional contracting processes such as Federal Acquisition Regulation FAR Part 15 and Part 12, the DoD workforce lack both education and basic tools to embrace the innovative approaches offered by Other Transaction Authority (Dunn R. L., 2009).

The program management team both Government and industry need to rely on a collaborative relationship rather that the traditional clause based template of deliverables. The

team needs to develop simple programmatic processes for program updates and search for best practices to guide as the negotiate terms and conditions (Smith, Drezner, & Lachow, 2002).

**Team Construct**

Adapted from the 2017 DoD Guide for Prototype Projects and other sources, a proposed minimum government management team construct follows:

1. Project Manager. This manager should have a positive attitude (Dunn, 2017) and willingness to avoid traditional clauses in their current state. The Project Manager should instead add simplified clauses, as appropriate, in order to provide the intent of the clauses effect (Gunderson, 2017).
2. The End User: The end user is the Operational Customer who will ultimately use the technology or technology application. This relationship is important in order to ensure that the technology research alignment to tactics, techniques and procedures and the strategies of implementation and use by the Warfighter. As such, a continuous feedback loop ensures alignment of technical parameters and priority focus. (Gunderson, 2017).
3. A Warranted Agreements Officer: Needs to be qualified and highly experienced to improve the chances for successful implementation of the Other transaction (U.S. Congress, 2008).
4. Legal Counsel and Payment Specialist: The legal council will ensure compliance with statutory regulation and assist in the terms and conditions of the agreement. The payment specialist will assist in defining the process for payments and any regulatory requirements for receiving payment (Defense Innovation Unit Experimental, 2016).
5. Highly Experienced Other Transaction Officials: While not officially required, recommendations from the Government Accountability Office, suggest that having a

highly experienced S&T member on the team in an advisor, mentor and training capacity is a best practice to improve execution of the agreement (U.S. Congress, 2008).

## Key Considerations for Research Projects

### Technology perishability

Technology advancements continue to evolve at a pace that the DoD research and development scientist struggle to keep up with (Baker, 2016). To address this, the OTs should openly discuss the desire to stay abreast of the latest available technology advancements by conducting iterative reviews during the evolution of the research (Gunderson, 2017) and employ modular open systems architecture to the maximum extent possible (Kendall, 2015)

### Incremental Agreements

The use of incremental agreements, which transition the stages of technology between Basic research to Applied research to Advanced Technology research and then Prototype, l helps ensure clear focus at each step. Because of the ease of implementation of OTs, follow-on agreements will preclude a gap in execution. Writing multiple agreements in phases that are succinct as possible and continue to expand knowledge with multiple agreements will ensure each agreement contains clear and succinct objectives.

### Technical Progress Schedule (Milestones)

In general, OTs have used payable milestone events to measure key technical performance with progress and payments tied to the accomplishment of an event. While not achievable in all cases, tying of a measurable event to payment vice estimated cost for an activity both incentivizes' the performer and gives the Government a better understanding of the advancement achieved (Dunn R. L., 2009). This gives the flexibility to adjust the design in order

to utilize the most current technology and maintain even pace with the cusp of technology. These milestone events are incremental advances toward the agreement goal and "each milestone is treated as a fixed-price task, thus eliminating the need to verify actual cost incurred" (Smith, Drezner, & Lachow, 2002, p. 14).

> "Build a Systems Engineering Plan that breaks the project into relatively small parallel efforts. Use OTA to issue small focused awards with rapid turnaround cycles. "Failures" will occur fast and cheap when they occur. Turn so-called failures into lessons learned for the next iteration." (Gunderson, 2017, p. 25)

Tying milestone events to payment schedule also provides opportunities for off ramps if the original premise of the research is determined to be unfruitful.

**Data Rights Considerations**

Since the technology developed with DoD funding can likely mature to a prototype and then a fielded system ensuring that the data rights are negotiated up front and during each phase of the research development period becomes important. Data classifications generally discussed are Technical Data and Computer software and rights negotiated based on the amount of funding the Federal Government and contractor invest in the technology (Defense, Open System Architecture Data Rights Team, U. S. O., 2013). Below is a description of Data rights found in Better Buying Power 3.0.

| Rights Category | Applies to these Types of Technical Data (TD) or Computer Software (CS) | Rights Criteria | Permitted Uses Within the Government | Permitted Uses by Third Parties Outside the Government [1] |
|---|---|---|---|---|
| Unlimited Rights (UR) | Noncommercial TD and CS | Developed exclusively at Government Expense, and certain types of data (e.g. FFF, OMIT, CSD) | All uses, no restrictions | All uses, no restrictions |
| Government Purpose Rights (GPR) | Noncommercial TD and CS | Developed with mixed funding | All uses, no restrictions | For " Government Purposes only, no commercial use |
| Limited Rights (LR) | Noncommercial TD only | Developed exclusively at private expense | Unlimited, except may not be used for manufacture | Emergency repair or overhaul [2] |
| Restricted Rights (RR) | Noncommercial CS Only | Developed exclusively at private expense | Only one computer at a time, minimum backup copies, modification [3] | Emergency repair/overhaul, certain service/maintenance contracts [2] |
| Negotiated License Rights | Any/all TD and CS- including commercial TD and CS | Mutual agreement of the parties, use whenever the standard categories do not meet both parties' needs | As negotiated by the parties; however, must not be less than LR in TD and must not be less than RR in non commercial CS (consult with legal counsel as other limits apply) | |
| SBIR Data Rights | Noncommercial TD and CS | All TD or CS generated under an SBIR Contract | All users, no restrictions | Cannot release or disclose except to Government support contractors |
| Commercial TD License Rights | Commercial TD only | TD related to commercial items (developed at private expense) | Unlimited in FFF and OMIT, other rights as negotiated | |
| Commercial CS Licenses | Commercial CS only | Any commercial CS or CS documentation | As specified in the commercial license customarily offered to the public [4] | |

*[1] All third party use under Government's license is subject to Government authorization. For rights categories other than UR, releases or disclosures to third parties must be accompanied by either the Non-Disclosure Agreement (NDA) from DFARS227.7103-7 or must occur under a contract containing DFARS 252.227-7025. A notice requirement also applies to releases of LR data and RR software.*
*[2] In addition to the footnote 1 NDA and notice requirement, all authorized Covered Government Support Contractor recipients of LR data or RR software must sign an NDA directly with the owner of the data/software, unless the direct-NDA requirement is waived by the owner.*
*[3] See DFARS 252.227-7014(a)(15) (March 2011) (or(a)(14) in previous versions) for more information.*
*[4] Such licenses must be consistent with Federal procurement law and satisfy user needs.*

**Figure 8. Better Buying Power 3.0 tri-fold. (Defense, Open System Architecture Data Rights Team, U. S. O., 2013)**

## Data Rights Documentation

Even though the Bayh-Dole Act does not bind OTs for basic, applied and advance technology research, the Agreements Officer, with assistance of the Project Manager and Legal Counsel review, should work to negotiate appropriate data rights for the particular technology considering the long- term impact (Halchin, 2011). In order to accomplish protection of the Government rights, the OTs should document the data rights conditions. One approach could include agreement that the non-government performer notify the Government in all cases where a potential technology component might lead to data right assertions other than unlimited before the decision is made to use it. The goal is to ensure that the Government retains rights for which

it has paid while encouraging access to innovative technology developed at company expense (Nunez, Spring 2017).

Companies cite traditional data right clauses associated with typical government contracting as barriers to their consideration of working with the Government. This stems from the unique procurement system the Government uses as opposed to the commercial marketplace. Studies have shown that when the data rights offer room for negotiation and simplification that Other transaction have accomplished successful programs which would never have been possible under traditional methods (U.S. Congress, 2008).

**Intellectual Property**

A 1996 study analyzed language that DARPA used to address Intellectual Property:

> "• the consortium has up to 4 months after the inventor discloses a subject invention to his company to notify the government;
> • the consortium has up to 24 months to inform DARPA whether it intends to take title to inventions arising from the agreement after its disclosure to the government;
> • DARPA agreed to delay exercising its government purpose license rights to inventions in which the consortium retains title until 5 years after the agreement is completed; and
> • the consortium has the authority to maintain inventions and data as trade secrets for an unspecified period of time under certain conditions." (Schinasi , Katherine V; DiNapoli , Timothy J; Cole, Edward D;, 1996, p. 7)

These provisions are examples of intellectual property declarations but there is no binding requirement of Other Transactions to follow the Bayh-Dole Act (Schinasi , Katherine V; DiNapoli , Timothy J; Cole, Edward D;, 1996).

**Proposal/ Agreement Size Limit**

Studies have shown that the DoD traditional Contracting timeline ranges from 2 to 24 months depending on the dollar value, in contrast, to some non-traditional contractor commercial agreements which range from a few weeks to 6 months. Traditional contracting also places a burden on resources, both human and financial. In a cost comparison study by the Governmental Accountability Office, the commercial contracting involved 3 part time employees, a couple of months and only a few thousand dollars compared to the proposal preparation for a DoD contract which required 25 full time employees, millions of dollars and took over 12 months to complete (United States Government Accountability Office, 2017).

**Cost Accounting**

While Federal Cost Accounting Standards are not required for OTs, many studies cite the lack of transparency of contractor cost details. The Government needs to retain the ability to track cost and related information to ensure that the funds are being used responsibly (Fike, 2009). Another way of ensuring cost accounting practices, sufficient to meet the intent of sound cost accounting principles is to obtain input from experts in the cost accounting field. These experts can offer up creative processes and perform assessments of the contractor's existing accounting system to determine if the contractor can provide sufficient data without development of a government-centric system. Once a cost accounting approach is developed then the Government Accountability Office has suggested adding language to the agreement, which allows audit access rights to the Government (U.S. Congress, 2008).

**Cost Sharing**

With barriers to entry such as shortened agreement process timeline and flexibility in negotiation of data rights, the government team should address the potential for cost sharing. The benefits to the companies are the potential use in commercial applications (U.S. Congress, 2008).

A case study of the Joint Unmanned Combat Air Systems (JUCAS) found that Boeing invested $300 Million and, because of the flexibility to organize as an IR&D project, Boeing was able to reduce labor and material rates by around 15%. This Other Transaction Agreement allowed Boeing to attract non-traditional companies including suppliers of unique materials (Dunn R. L., 2009).

Another benefit to cost sharing is the continuity in execution due to impacts of government allocation of funding from issues such as budget approval delays. Some non-traditional companies unaccustomed to federal budget dependency have cited this issue as a frustration in conducting business with the government (United States Government Accountability Office, 2017).

**Agreement Modification**

The flexibility to negotiate in OTs provides the opportunity to make changes needed in the project given a mutual benefit to the Government and Contractor. According to the 2002 RAND study, “OT agreements typically contain a clause stating that any time progress or results indicate that a change would be beneficial to project objective, such a change can be made through mutual agreement of DoD and industry managers” (Smith, Drezner, & Lachow, 2002, p. 19). This allows the project to adapt to changing knowledge points discovered during the execution on the project and institute those changes instantaneously upon agreement by all

parties. There is no required documentation format to capture these changes and typically no external review is required as long as you are not changing the projects stated goal or total cost (Smith, Drezner, & Lachow, 2002). The ease with which industry can enter into an agreement, the low cost of entry, the flexibility to leave the agreement without termination penalty and opportunity for industry to share in development cost given the potential for commercial application make OTs an ideal vehicle to attract innovative technology.

**Agreement Termination**

Inherent to research and development projects is technical risk and uncertainty because in many case the project is pressing the state of the possible. A flexibility offered by OTs is the ability to negotiate termination conditions. One consideration is premature termination if agreed to by all parties. In a project studied by the RAND Corporation, termination occurred midway through the project because the technical progress was lacking and there was no solution in sight. In another scenario, a firm competing in the design phase was advised to drop out because they were significantly behind the other performers (Smith, Drezner, & Lachow, 2002).

**Applicable Statutes**

In order to formulate an OTs, which is legally sufficient, it is important to know what statutory guidance applies and what guidance does not apply. Pulled from different sections of US Code the following summaries outline the use of 10 U.S.C. §2371, which governs OTs for basic, applied and advanced technology projects (Halchin, 2011):

> "• The Secretary of Defense and the Secretary of each military department may, under the authority of 10 U.S.C. §2371, enter into other transactions for the purpose carrying out basic, applied, and advanced research projects. In using OT

> authority, the Secretary of Defense shall act through DARPA or any other DoDDoD element the Secretary designates.
>
> • Advance payments may be permitted.
>
> • An "other transaction" "may include a clause that requires a person or other entity to make payments to the Department of Defense or any other department or agency of the Federal Government as a condition for receiving support under the ... other transaction."
>
> • The Secretary of Defense shall ensure, "to the maximum extent practicable," that an "other transaction" does not provide for research that would duplicate research already being conducted by DoD programs.
>
> • The Secretary of Defense shall ensure, to the extent that he or she determines practicable, that funds provided for a transaction "do not exceed the total amount provided by other parties to the ... other transaction."51 This provision does not apply to prototype OTs.
>
> • The Secretary of Defense shall ensure that a transaction "may be used for a research project when the use of a standard contract, grant, or cooperative agreement for such project is not feasible or appropriate." This provision does not apply to prototype OTs." (Halchin, 2011, pp. 11-12)

**Inapplicable Statutes**

Discerning non-applicable statues is important to maintain the flexibility that Other Transaction Authority grants. This will enable discussions with legal counsel as well as agreement officers to ensure that the agreements do not become burdensome with regulation and statutory regulation that might prohibit innovation and streamlined execution. A working group

from the American Bar Association studied 30 statues focused on applicability to DoD's OT Authority and discovered that many traditional statutes and acts of Congress do not apply (Halchin, 2011). Appendix 1 lists these statutes.

**Example Agreement Process**

One of the barriers to innovative companies engaging in business with the Government revolves around the lengthy time to award contracts and the limited avenues to develop long-term business arrangements with DoD. As such, the Agreements Officer needs to: 1) have the authority to discuss the needs or problem the government is trying to solve, 2) gauge whether the companies technology or further maturity of that technology satisfies the need of the Government, and 3) determine the ability to award an agreement within months (Defense Innovation Unit Experimental, 2016). The Defense Innovation Unit Experimental (DIUx) has developed a simplified acquisition process, which significantly reduces the timeline compared to traditional contracting (United States Government Accountability Office, 2017).

This streamlined process focuses on reaching the terms of the agreement in a collaborative process with the company and then placing flexibility in the agreement to make adjustments as knowledge of the technology matures.

The steps provided below are a representation of the approach DIUx implemented in their Commercial Solutions Opening (CSO). First DIUx posted the technology areas of interest on the internet. Next, DIUx requested high potential companies to submit solution briefs and the applicability of their technology. DIUx made it clear that if they were not interested then the company should expect no further contact. If the company's technology, however, is considered a high potential candidate then DIUx would request a full proposal. Lastly, after the review and acceptance of the full proposal,, then negotiation on scope and other agreement conditions would begin (Tobin, Millner , & Gillette , 2016). Figure 9 illustrates the simplicity of the solicitation, review and formulation of an OTs.

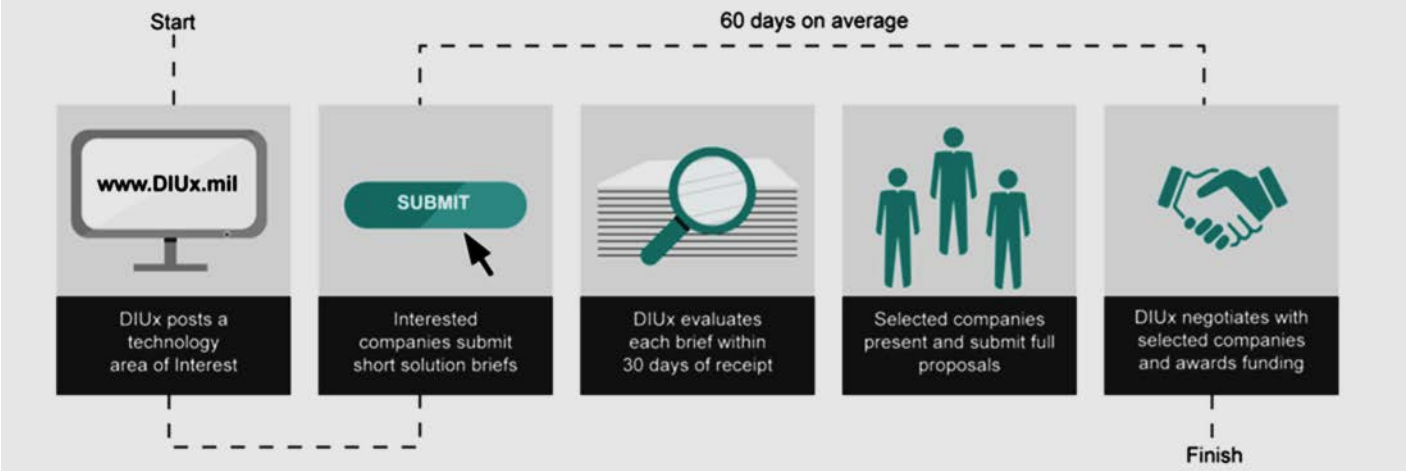


**Figure 9. Commercial Solutions Opening Process to Award Other Transaction Agreements (United States Government Accountability Office, 2017, p. 28)**

### Consortium Applicability

### Consortium Definition

A consortium is a multi-party agreement that treats all companies as equals or co-primes rather than the tradition prime contractor and sub-contractor relationship (Halchin, 2011). The ability to have a mix of performers is advantageous because of the ability to add members who might provide a unique application at any time during the execution. This provides participation

opportunities for small businesses to bring niche products to solve technical challenges (U.S. Congress, 2008).

In general, establishment of consortiums concentrate around specific technology areas. For example, The National Geospatial-Intelligence Agency formed a consortium to address Chemical, Biological and Radiological detection defense and security needs (Dunn R. L., 2009). Another consortium is the Defense Innovation Unit - Experimental (DIUx) which focuses on technologies such as autonomy and artificial intelligence (United States Government Accountability Office, 2017).

**Consortium Benefits**

Since consortiums concentrate around specific technology areas, the idea is to establish a market place of performers in a particular technology field that yields the flexibility to reach out to non-traditional participants of federal acquisition and bring their technology to bear on defense problems (U.S. Congress, 2008). This focus around technology areas further provides the ability to address tactical and strategic cross-functional collaboration to advance technologies with similar interfaces rather than focusing on platform functionality alone.

Created by the Army Contracting Command, the consortium type OTs offer several appealing structural advantages (Gunderson, 2017).

- "Low barriers to entry, simplified procedures, and clear incentives, indeed, attract innovative non-traditional performers"
- "Consortia provide venues for competition among members that are consistent with FAR "free and open" intentions, low maintenance for the government, and efficient both for government and industry participants."

- "The same venue that provides for competition is equally efficient for catalyzing partnerships among members"

  "Solicitation-to-award timelines are much shorter than typical under the FAR." (Gunderson, 2017, p. 22)

In a memorandum titled *Implementation Directive for Better Buying Power 3.0- Achieving Dominant Capabilities through Technical Excellence and Innovation,* Mr. Frank Kendall- Under Secretary of Defense for Acquisition, Technology and Logistics, directed the Assistant Secretary of Defense for Research and Engineering to:

> "…evaluate the potential benefits of greater participation in innovative focused consortium arrangements…" This will include one or more independent organizations that have direct access to companies that are able to provide emerging commercial innovative solutions to address DoD technology needs." (Kendall, 2015, p. 10)

**Consortium Manager**

Some of the consortiums developed with the federal government to date have an established a consortium manager. The following are considerations relative to Consortium Managers (Gunderson, 2017):

- "Consortium Managers can be individuals, for profit corporations, or not-for-profit corporations"
- "Serve as an independent agent of the government, and will generally not be eligible to compete for project awards"
- "The consortium managers should be fire-walled from participating in the actual funded project work."

- "The consortium manager accepts risk for vetting members"
- "Demonstrate the ability to:
  - "broker government requirements across its membership
  - " manage and document fiducial activities necessary to transfer funds from government to consortium
  - and "provision value added services with respect to the government's objectives. Examples of value added services include targeted recruiting of new members, facilitating acquisition process innovation, performing/facilitating technical validation and verification, capturing evolving best practices and standards, managing events, performing training, etc." (Gunderson, 2017, p. 30)

**Deliverables**

In the past, those executing OTs and those assessing the reasonableness and accuracy of deliverables received during execution; found that deliverables were not always secured by the Government agency at the milestone completions and progress payments. In order to ensure the deliverables meet the terms of the contract, the OT agreement should reflect clearly defined descriptions of the contents of each deliverable and when received, ensure that the appropriate data right assertions are clear noted (U.S. Congress, 2008).

**Summary**

US Code 2371 provides the Department of Defense a unique and flexible authority to enter into OTs for Basic, Applied and Advanced Technology Research and Development. This authority, designed to promote innovation, streamlines acquisition timelines and increase access to the commercial market place. The Department of Defense has not utilized the OTA to the full

potential primarily because there is a lack of understanding of the authority, education about how to employ the authority and of training to strengthen the OT agreements proliferated use.

Past criticisms of the execution of agreements may stem from the lack of a guide for OTs for basic, applied and advanced technology research projects. This research expands interest in the subject and further development of products to assist DoD officials.

Listed in this research paper are some of the findings, issues and concerns over the last few decades, for use when developing an OT agreement, to prevent errors of the past. Focusing on documentation of the process, actions and results will help provide transparency during audit review and provide a foundation for lessons learned. Detailed focus on areas such as data rights, cost accounting, and other areas historically sighted as shortfalls in the execution of OTs will add rigor to the agreement.

## Conclusions & Recommendations

The Federal Government has fallen behind industry in terms of innovative technology. Congress has granted the Department of Defense authority to use OTs for basic, applied and advanced technology projects yet there is little use of OTs due to inexperience and knowledge on how to use OTs. The research question for this paper: given the lack of specific guidance for implementing OTs for basic, applied and advanced technology, what are the primary factors of importance when considering creating an agreement? This research exposes the issues cited on the negative and positive uses of OTs for basic, applied and advanced technology projects while pulling from guidance that does exist for prototype projects. OTs are a fast and effective tool to reach innovative companies and gain access to their technologies. With some careful considerations of the critiques of the past, a focus on documenting each step, supporting rationale and legal direction, the latest technologies can be in DoD’s arsenal.

**Recommendation 1: Other Transactions Guide**

The Department of Defense could create and distribute a Guide for OTs of basic, applied and advanced technology. Another solution is the Department of Defense could expand the 2017 Other Transactions (OT) Guide for Prototype Projects to include a section, which covers the US Code 2371 portion. This guide would provide insight into proper execution methods and create at consistency in execution standards beyond what is written in US Code 2371.

**Recommendation 2: Delivery of Other Transactions Course to Broad Audiences**

Construct a course focused on Other Transaction Authorities. Either the Defense Acquisition University or the Contracting Commands within the different services could create a course targeting Contracting personnel, project managers and attorneys. This course could include history, statutory authority description, historical criticism, and templates to use in the construction of an OTs for basic, applied and advanced technology as well as prototype projects.

**Recommendation 3: Contracting Career Field Cross-training**

Since one of the major obstacles cited for the lack of use of Other Transaction Authorities is the conditioning of the Department of Defense to traditional acquisition and the associated regulations, contracting personnel could be cross-trained with organizations with successful implementation of the OTA. DIUx, DARPA, and other organizations have a plethora of knowledge, samples, and lessons learned that could benefit areas where use of OTs does not exist or has seen limited use in the past.

**Recommendation 4: Look to Industry for "Best Practices"**

Look to industry practices and reach out to other organizations with experience executing Other Transaction Authorities for advice and templates. Keep focus on the goal and prevent stagnation of doing science for the sake of doing science. Lastly, think innovatively in the

construction of the OTs. Avoid reverting to FAR language; instead come up with a new approach that meets both judicious metrics as well as simplistic function.

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## Appendix 1

**Statutes Determined Inapplicable to OTs**

"1. Sections 35 U.S.C. 202-204 of the Bayh-Dole Act, –which prescribes government's rights in patentable inventions made with government funds.

2. Competition in Contracting Act, Pub. L. No. 98-369 (1984), as amended - Promotes the use of competitive procurement procedures and prescribes uniform government-wide policies and procedures regarding contract formation, award, publication, and cost or pricing data (truth in negotiations). See DoD coverage generally at chapter 137 of title 10, United States Code, particularly sections 2301-2305.

3. Contract Disputes Act, Pub. L. No. 95-563 (1987), as amended, 41 U.S.C. 601 et seq. - Provides for the resolution of claims and disputes relating to government contracts.

4. Procurement Protest System, Subtitle D of Competition in Contracting Act, Pub. L. No. 98369 (1984), 31 U.S.C. 3551 et seq. - Provides statutory basis for procurement protests by interested parties to the Comptroller General.

5. Public Law 85-804, 50 U.S.C. 1431-1435, Extraordinary contractual relief - Authorizes such remedies to contractors as formalization of informal commitments, amendments without consideration, and correction of mistakes, and permits indemnification for unusually hazardous risks.

6. 10 U.S.C. 2207. Expenditure of appropriations: limitation - Permits termination of contracts upon a finding that the contractor has offered or given gratuities to obtain a contract.

7. 10 U.S.C. 2306. Kinds of contracts - Prohibits use of cost-plus-a-percentage-of-cost system of contracting; requires a covenant against contingent fees paid to obtain contracts; limits fee amount on virtually all cost-type contracts.

8. 10 U.S.C. 2313. Examination of records of contractor - Provides agency and GAO access to contractors facilities to audit contractor and subcontractor records and gives the DCAA subpoena authority. (Section 801 of the National Defense Authorization Act for Fiscal Year 2000, Public Law 106-65, does provide for GAO access as addressed in C2.14 and Appendix 4.)

9. 10 U.S.C. 2320, Rights in Technical Data and 10 U.S.C. 2321, Validation of proprietary data restrictions - Prescribes government and contractor rights to technical data.

10. 10 U.S.C. 2353. Contracts: acquisition, construction, or furnishing of test facilities and equipment (to R&D contractors).

11. 10 U.S.C. 2354. Contracts: indemnification provisions - Indemnification authority against unusually hazardous risks for R&D contractors.

12. 10 U.S.C. 2393. Prohibition against doing business with certain offerors - Prohibition with respect to solicitation of offers and contract awards to contractors that have engaged or are suspected to have engaged in criminal, fraudulent, or seriously improper conduct.

13. 10 U.S.C. 2408. Prohibition on persons convicted of defense-contract related felonies and related criminal penalty on defense contractors - Generally,

convicted felons precluded from working in a managerial capacity on DoD contracts.

14. 10 U.S.C. 2409. Contractor Employees: protection from reprisal for disclosure of certain information. Whistle blower protection to contractor employees.

15. 31 U.S.C. 1352. Limitation on the use of appropriated funds to influence certain Federal contracting and financial transactions - Prohibits use of funds to influence or attempt to influence government officials or members of Congress in connection with the award of contracts, grants, loans, or cooperative agreements.

16. Antikickback Act of 1986, 41 U.S.C. 51-58 - Prohibits kickbacks in connection with government contracts; provides civil and criminal penalties.

17. Procurement Integrity Act, section 27 of the Office of Federal Procurement Policy Act, 41 U.S.C. 423 - Imposes civil, criminal, and administrative sanctions against individuals who inappropriately disclose or obtain source selection information or contractor bid and proposal information.

18. Service Contract Act, 41 U.S.C. 351 et seq., Walsh Healey Act, 41 U.S.C. 35-45; Fair Labor Standards Act, 29 U.S.C. 201-219 - Provide protections for contractor employees.

19. Drug-Free Workplace Act of 1988, 41 U.S.C. 701-707 - Applies to contracts and grants.

20. Buy American Act, 41 U.S.C. 10a-d. Provides preferences for domestic end products in production.

21. Berry Amendment, 10 U.S.C. 2241 note - Provides that no part of any appropriation is available to procure certain items of food, clothing, natural fiber products or other items that are not manufactured in the U.S." (Defense Innovation Unit Experimental, 2016, pp. 41-42)

## Acronyms

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| BA | Budget Activities |
| CSO | Commercial Solutions Opening |
| CRADA | Cooperative Research and Development Agreement |
| DARPA | Defense Advanced Research Projects Agency |
| DCAA | Defense Contract Audit Agency |
| DIUx | Defense Innovation Unit Experimental |
| DoD | Department of Defense |
| FAR | Federal Acquisition Regulation |
| GAO | Government Accountability Office |
| IR&D | Independent Research & Development |
| JUCAS | Joint Unmanned Combat Air System |
| NASA | National Aeronautics and Space Administration |
| NDAA | National Defense Authorization Act |
| OTA | Other Transaction Authority |
| OTs | Other Transaction Agreements |
| RDT&E | Research Development Test and Evaluation |
| TIPS | Three Integrative Pillars of Success |
| USC | United States Code |

**Disclaimer**

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