

OTHER TRANSACTION AUTHORITY AND THE CONSORTIA-BASED ACQUISITION MODEL: A VALUABLE TOOL FOR RAPID DEFENSE INNOVATION

Benjamin Schwartz and Bill Greenwalt

The effective use of Other Transaction Authority by the Department of Defense is critically important because spurring rapid defense innovation is vital to U.S. security in an era of great power competition. This paper provides defense practitioners an explanation of the history and current role of consortia-based OTA so that they are equipped to use this valuable acquisition authority.

EXECUTIVE SUMMARY »

The U.S. Department of Defense (DOD) spends hundreds of billions of dollars each year on acquisitions subject to the Federal Acquisition Regulations (FAR) and the Defense Federal Acquisition Regulation Supplement (DFARS). Yet one of the more important and less understood tools Congress provides to the Pentagon is Other Transaction Authority (OTA). OTAs are legally binding agreements that give government officials the flexibility to include, exclude, or amend requirements that are mandatory under the FAR – those governing intellectual property rights, termination clauses, Cost Accounting Standards, and audit requirements. OTA also permits agreements to be structured in a variety of ways through joint ventures, partnerships, and consortia. This may appear to be an esoteric component of U.S. defense policy, but this flexibility is increasingly essential to U.S. national security.

OTA allows acquisition officials to focus on DOD's most pressing requirements by elevating rapid innovative prototyping among the DOD acquisition system's hierarchy of priorities. The regulations and procedures that comprise the U.S. defense acquisition system are a labyrinth of complex, layered requirements that reflect competing values and objectives. The system tries to balance these values – accountability, transparency, innovation, quality, timeliness, efficiency, effectiveness, and fairness – but in practice some values dominate others. OTA allows for greater speed, flexibility, and accessibility and facilitates relationships among innovative traditional and nontraditional defense contractors (NDCs), academia, nonprofit organizations, and other small businesses.

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These are critically important issues in an era of great power competition. Today, the U.S. commercial sector outpaces the government in developing innovative technologies in many areas – such as electronics and software – that are vital to competition with China and Russia. To entice pioneering companies to become part of the defense industrial base in this competitive environment, the government not only has to spend money but do so in a way that convinces profit-driven innovators to shift investment away from commercial ventures with unregulated profit margins to government sales that are subject to public scrutiny and can take a decade or more to complete. The use of OTA is an important means to this end, but effective employment of this authority requires an appreciation of its evolution over time.

Based on interviews with policymakers, congressional oversight authorities, and industry representatives, we believe that a lack of understanding of OTA has the potential to negate its effectiveness. An industry and acquisition workforce unaware of the intent and unique components of OTA awards will tend to revert to FAR-like structures that discourage some innovative companies from doing business with DOD. At a time when the use of OTA is on the rise – it has been essential to America’s response to the COVID-19 pandemic for example through Operation Warp Speed – addressing this information gap is especially important.

The purpose of this paper is to provide the history and evolution of OTA authorizations; the context of the consortia-based OTA model(s); the relevant features, characteristics, data, and trends; the advantages and the criticisms; as well as pertinent conclusions and recommendations so that defense and industry practitioners are equipped to use this valuable authority to support our warfighters and meet the national security objectives of our Nation. We strongly recommend that DOD produce updated guidance on OTA use that highlights the importance of its distinctive flexibility from FAR contracts, institute new training for the acquisition workforce, collaborate with industry to institute new mechanisms to increase transparency of OTA use, and promote best practices in OTA consortium management.

HISTORY OF THE OTA »

The Other Transaction Authority model of contracting was born in response to a specific challenge – the failure of the United States to keep pace technologically with the Soviet Union in space. The surprise launch of Sputnik 1 in the fall of 1957 gave rise to a Space Race and fears about the ability of the Soviets to build on this satellite capability for military purposes. The 1958 National Aeronautics and Space Act granted NASA the authority to “enter into and perform such contracts, leases, cooperative agreements, or other transactions as may be necessary” to accomplish its research and development mission. In time, Congress extended different variations of OTA to other select agencies – including DOD. The motivation was to meet foreign competition by providing an alternative to the FAR.

The FAR comprises nearly 2,000 pages of regulations detailing the policies and procedures that pertain to the acquisition of goods and services by the U.S. government. The FAR establishes not only a set of procedures, but an expression of the U.S. government’s priorities and duty to the public. In effect, if not in intention, the FAR gives pride of place to level competition. It ranks other considerations, like fostering innovation, lower down the

ladder. This is manifest in the multiple ways in which the FAR unintentionally dissuades innovative companies from pursuing federal contracts, establishes barriers to small and new businesses, and prioritizes impartiality in administration and compliance.

For example, commercial industry and suppliers do not have government Cost Accounting Standards. The FAR's cost type reimbursable model, whereby the government pays for all research and development (R&D) costs and then owns the intellectual property, is also completely foreign to most commercial companies. The FAR does provide mechanisms to negotiate intellectual property (IP), but the approval levels are high, cumbersome to obtain, and the process requires time and money to confidently protect a company's position in the commercial marketplace. Commercial enterprises normally fund their own R&D and make investments to obtain advantages over their competition. Commercial enterprises also establish their pricing using competitive methodologies based upon customary commercial terms, conditions, and norms that pay back their research investment over the length of the product life cycle. The government, by contrast, looks at R&D as a one-time expenditure and prices production based on marginal costs. The rigidities of the FAR make it extremely difficult for the government to price a commercial firm's need for a return on independent R&D investment.

Most U.S. companies need to either change their basic business structures or establish separate government focused entities (subsidiaries, divisions, etc.) to be eligible to do business with the government under the FAR. They also must accept significant compliance costs that are unique to government acquisitions, which often use cost-based pricing (versus market-based pricing) in source selection and can include regulated returns on investment. The penalties for noncompliance can be harsh, which is an effective deterrent to breaking the law but also a deterrent to doing business with the government. Additionally, federal business acquisition costs can be excessive (adding significantly to overhead). Decision timelines also can be lengthy, and even after an award decision is made, the decision is subject to protest. These factors dampen the willingness of commercial enterprises to serve as suppliers to the government and limit the U.S. government's ability to stimulate, shape, and access emerging technology.

The FAR's common specifications for all procurements can also be counterproductive to innovation. FAR-based acquisitions normally require highly prescriptive technical and programmatic requirements against which solicitations are issued to all offerors. This helps maintain a level playing field for businesses and protects against arbitrary and capricious decisions. In many cases this approach works well. However, standard requirements – written at times without awareness of the latest technology and cost trends – often drive research, development, and production when U.S. warfighters would be better served by innovations in technology, manufacturing, and efficiency guiding and shaping acquisition requirements.

OTA'S STATUTORY ORIGIN AND EVOLUTION »

OTA was designed and refined over time to incentivize research and development from nontraditional defense contractors (NDCs) and academia to deliver rapid and effective prototypes when FAR-based contracting failed to do so. First granted to NASA for R&D, OTAs eventually spread to other U.S. departments and agencies and grew

in use and availability to address prototyping and production. The following table from the Defense Acquisition University highlights key legislative milestones in the evolution of the modern OTA.¹

| 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 ² |
| 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 (NDC)” is defined in NDAA FY03 |
| 2003 | NDAA for FY04 removes requirement for submitting annual reports to Congress after FY06 |
| 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 authority 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 and establishes production OTA authority |

¹ “[OTA Statutory Timeline](#),” Office of the Secretary of Defense, last modified 12/1/2020.

² Note: This legislation is not to be confused with Sec 804 of the FY16 NDAA on middle tier acquisition.

It can be argued that in 1958 DOD was not included in the National Aeronautics and Space Act because it already had similar authority and was using it. Experimental authorities were authorized in law, and DOD did not yet have the kind of barriers in contracting that required a new authority. The disuse of experimental authority (now codified in 10 USC 2373) led Congress to reexamine the National Aeronautics and Space Act to spur DOD innovation and establish a DOD OTA authority (10 USC 2371) in 1989. This new authority began with DARPA for advanced research projects but was expanded to DARPA prototypes in 1993 and to the rest of DOD in 1996.

In the late 1990s, concern grew that OTAs were being awarded predominately to traditional defense firms. This prompted legislative revisions to encourage smaller, more innovative firms to participate.³ During this period, some of the largest defense programs were OTAs contracted by major defense contractors. These included the F-35, which began as the Advanced Short Take Off Vertical Landing system, the Arsenal Ship program, and the Future Combat System (FCS).

Congress reacted by establishing a cost-share requirement for traditional contractors working on projects that did not include “significant” participation in the OTA by an NDC. The next major policy change was to establish a Low Rate Initial Production (LRIP) pathway in 2001. However, this was a little-used authority because it tried to force NDCs back into the FAR for a follow-on production contract. Congress changed this in 2015, voting to allow follow-on production OTA authority.⁴ Such a procurement subsequently could be awarded without the use of competitive procedures if competitive procedures had been used for the initial selection of parties and the participants had successfully completed the prototype project.⁵

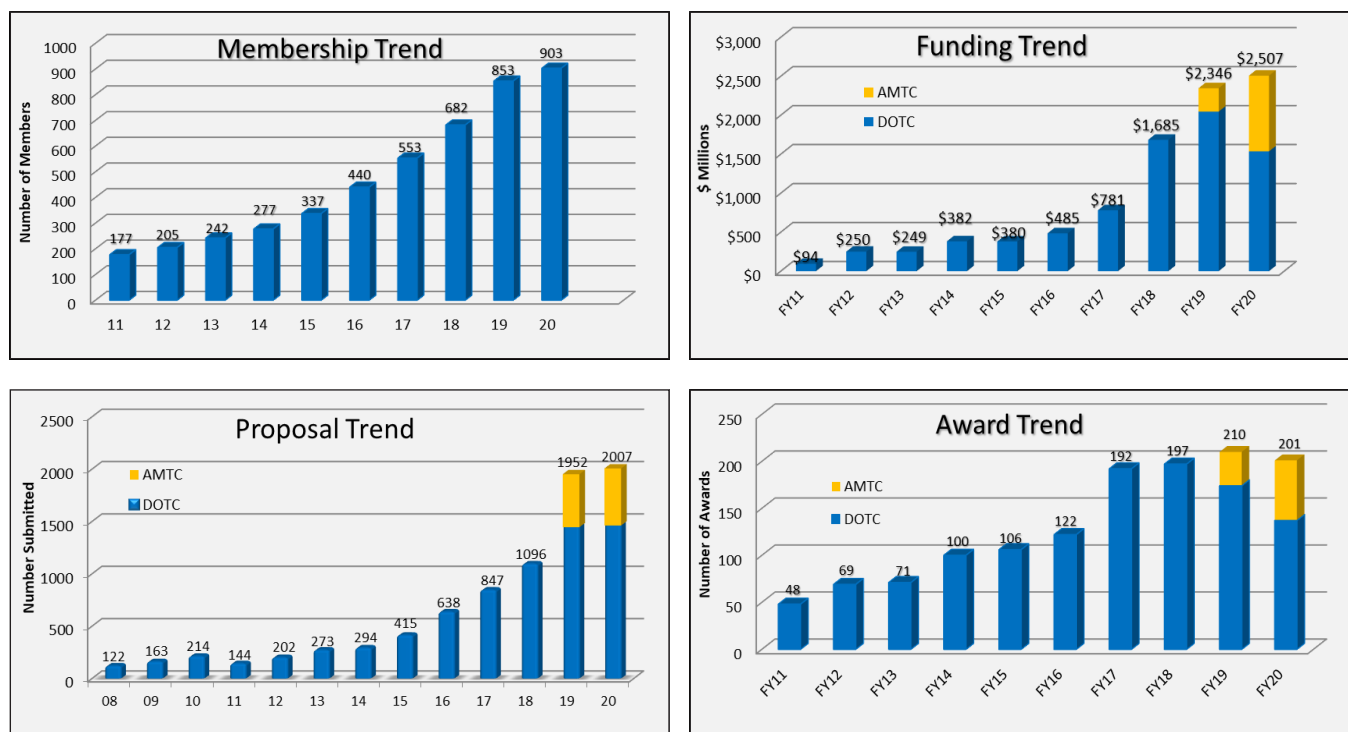
³ These concerns and subsequent expansion of the OTA concept originated from Congressional attempts to create an alternative system in the Federal Acquisition Streamlining Act to attract NDCs called commercial item procurement. The regulatory implementation of commercial item procurement in FAR Part 12 was designed to address the barriers that non-government unique contractors faced. In retrospect, FAR Part 12 proved helpful for commercial off-the-shelf (COTS) items that are identical to those sold in large quantities in the commercial market. For modified commercial items, the legislation was fraught with bureaucratic red tape and catnip for overzealous auditors because of the government’s inability to price and value private sector investment in research that was authorized as “commercial of a type” items. This definition allows commercial companies to create government unique items that are similar or “of a type” to what they sell in the commercial marketplace and still be covered by FAR Part 12. Commercial of a type acquisitions have become harder to execute while government unique contracting clauses have proliferated in other FAR 12 contracts. This leads many commercial firms to either exit or not enter the government market. Likely as a consequence of these trends OTA usage has risen in cases that Congress had hoped would be addressed by FAR 12.

⁴ The reason Congress changed the authority is that follow-on production was determined to be central to the success of including NDCs in the system. NDCs are more likely to participate if they see the possibility of follow-on sales to justify their investment and focus.

⁵ Competitive procedures were defined as “competition to the maximum extent practicable” as opposed to the FAR standard of “full and open.” See: “[Part 13 – Simplified Acquisition Procedures of Federal Acquisition Regulations](#),” General Services Administration, last modified 11/23/2020.

THE NUMBERS »

This statutory authority has not gone unused. According to statistics published by Bloomberg Government in May 2020, U.S. government-wide OTA spending grew from about \$1 billion in FY15 to \$7.8 billion in FY19. DOD accounted for more than 90 percent of FY19 spending and more than two dozen consortia collectively account for about 60 percent of total OTA obligations. While the FY20 figures are not yet available, some analysts suggest OTA awards may reach \$12 billion. Data from the National Armaments Consortium further attests to this growth trajectory. The following charts show that consortia membership continues to grow with increased funding and OTA awards.



THE CONSORTIUM-BASED OTA MODEL »

OTAs are awarded in several ways. One way is through a direct award process such as a Request for Proposal (RFP), a Broad Agency Announcement (BAA), or through a follow-on to an existing OTA. A second mechanism is through a consortium-based OTA. A consortium is an association formed by multiple parties for the purpose of participating in a common activity or pooling resources to achieve a common goal. Consortium-based OTAs allow multiple companies (traditional defense contractors and NDCs) and academia to collaborate with government customers and to partner with each other to accelerate innovation.

List of Current Consortia

| OTA Consortium | Sponsor | Established |
|---|-----------|-------------|
| National Shipbuilding Research Program (NSRP) | Navy | 1998 |
| DOD Ordnance Technology Consortium (DOTC) | OSD | 2002 |
| National Advanced Mobility Consortium (NAMC) | OSD | 2008 |
| Vertical Lift Consortium (VLC) | OSD | 2010 |
| National Spectrum Consortium (NSC) | OSD | 2014 |
| Consortium for Command, Control, and Communications in Cyberspace (C5) | Army | 2014 |
| Consortium for Energy, Environment, and Demilitarization (CEED) | Army | 2015 |
| Medical Technologies Enterprise Consortium (MTEC) | Army | 2015 |
| Border Security Technology Consortium (BSTC) | DHS | 2015 |
| Medical Chemical Biological Radiological Nuclear (CBRN) Defense Consortium (MCDC) | OSD | 2016 |
| Open Systems Architecture Initiative (OSAI) | Air Force | 2016 |
| Defense Automotive Technologies Consortium (DATC) | Army | 2016 |
| Countering Weapons of Mass Destruction (CWMD) | OSD | 2017 |
| Propulsion Directorate Consortium Initiative (PCI) | Air Force | 2017 |
| Space Enterprise Consortium (SpEC) | Air Force | 2017 |
| Air Force Life Cycle Management Center (AFLCMC) Consortium Initiative (ACI) | Air Force | 2017 |
| Sensors, Communications, and Electronics Consortium (SCEC) | Army | 2017 |
| National Geospatial-Intelligence Agency (NGA) Consortium | NGA | 2017 |
| Cornerstone Consortium | OSD | 2018 |
| Aviation & Missile Technology Consortium (AMTC) | Army | 2018 |
| COBRA Consortium | Army | 2018 |
| Training and Readiness Accelerator (TRex) | Army | 2018 |
| Information Warfare Research Project (IWRP) | Navy | 2018 |
| Undersea Technology Innovation Consortium (UTIC) | Navy | 2018 |
| Supply Chain Consortium Initiative (SCCI) | Air Force | 2019 |
| Engineer, Research, and Development Center (ERDC) Consortium | Army | 2019 |
| Expeditionary Warfare Consortium (EWC) | Navy | 2019 |
| Naval Aviation Systems Consortium (NASC) | Navy | 2019 |
| Naval Surface Technology and Innovation Consortium (NSTIC) | Navy | 2019 |
| Strategic & Spectrum Missions Advanced Resilient Trusted Systems (S2MARTS) | Navy | 2019 |
| University Consortium for Applied Hypersonics Research | DOD | 2020 |

In the 1990s when Congress authorized the ability to establish consortium-based OTAs, it did so in part on the conclusion that DOD had lost its ability to effectively collaborate with industry because of a top-down, requirements-driven acquisition system that defined a solution that only a narrow portion of industry could compete to build. Congress wanted a mechanism that would allow input from industry to be used to solve more general problems. Consortia were also seen as useful in providing a platform to translate unique government culture and processes into a language non-defense companies could understand while allowing those companies to focus on their core competence in R&D. Once Congress allowed OTAs to be used to transition prototypes to production, consortia began to facilitate these arrangements as well.

Consortia differ with respect to organization, governance, business practices, member constituency, and technical focus. In 2015, Senate Armed Services Committee staff visited Picatinny Arsenal. They examined the contracting staff at Army Contracting Command New Jersey (ACC-NJ) and considered them the model for subsequent legislation to expand OTA in the 2015 and 2016 NDAA's. This model was subsequently replicated across DOD in several new consortia.⁶

Defense consortia were designed initially to focus on collaborative research, but soon it became apparent that they could also function as a clearinghouse for defense contracting. For example, DOD Ordnance Technology Consortium (DOTC) describes its vision as "An integration of Government, Industry, and Academia into a single enterprise executing joint and co-funded initiatives, sharing and developing goals and objectives, resources and assets, and utilizing existing personnel, facilities and equipment." The common goal of consortia members begins to develop and deliver combat capabilities with an efficiency not possible without collective action and collaboration. A review of consortia charters, mission statements, and schedule of activity affirm that consortia's networking, coordination, and communications functions benefit both government and industry.

⁶ One of the authors, as a SASC staff member that participated in this visit, believes that the original Army Contracting Command-New Jersey (ACC-NJ) model for consortia OTAs has changed significantly and recent efforts to replicate current practices at ACC-NJ in other consortia are counterproductive to innovation. Trends over the last three years show a growing number of FAR-like clauses and processes in OTA vehicles managed by ACC-NJ and many other new consortia. These clauses and processes can be significant barriers to entry for innovative NDCs and venture capital-backed portfolio companies.

Consortia Attributes

| General Benefits | Benefits for Government | Benefits for Industry |
|--|---|---|
| <ul style="list-style-type: none"> • Participation of NDCs • Increased competition by facilitating the entrance of companies into the market • Technical innovation by linking service, industry, and academic experts • Efficient communication between government and industry • Advertisement of industry-wide capabilities • Accessibility of breakthrough technologies • Mechanisms to resolve disputes and conflicts involving OTAs | <ul style="list-style-type: none"> • Tailored Terms & Conditions (T&Cs) • Unique capability for partnerships between industry and academia and combining resources of government R&D with academic institutions • Integration of multiple technology domains, collaboration between multiple agents, and multiple approaches to solving “wicked problems” • Partnerships that mitigate capital risk and technical risk • Reduced acquisition lead time • Source selection integrity • Ability to fund projects incrementally • Open dialogue with contractors except during source selection ⁷ • Flexibility to modify the technical approach without time consuming contract modifications | <ul style="list-style-type: none"> • Relief from FAR provisions and Cost Accounting Standards (payable milestones) • Flexibility regarding intellectual property • Higher visibility into U.S. government requirements • Planning for technology development investments • Reduced bid and proposal costs with use of enhanced white papers • Use of Independent Research and Development funds for projects • Low barrier to entry offers member benefits such as access to collaboration events, online portals, live/on-demand training, awards, broad networking opportunities (live and virtual), emerging requirements, and competitive intelligence • Extended proposal validity period through “basket” provisions when enhanced white papers are adjudicated and found to be technically viable • Open dialogue with the government permitted up until proposal submittal • Recruitment, onboarding, education, training, and member services designed to enable and facilitate NDCs to collaborate with government customers, and to collaborate and partner with other traditional, NDC, and academia consortium members |

⁷ New and unnecessary restrictions that appear to be increasingly placed on discussions after technology evaluation has taken place are concerning. Such discussions are a key attribute of using an OTA because they allow for close cooperation between government and industry and enable rapid innovation. This is a key difference between OTA awards and FAR contracts.

The most valuable contribution of consortia is arguably their ability to streamline development to acquisition and the “speed to field” of state-of-the-art capabilities. This is possible through minimizing the cost to compete through networking, education, and collaboration with DOD during requirements generation, the proposal stage, and within joint working groups in specific technology areas. The consortia provide a valuable bridge between capital and risk by onboarding NDCs to cooperate in joint funded requirements during this critical stage. Typically, the traditional contractors are better capitalized but more risk averse than the NDCs. Consortia bring the parties together in a manner that would not otherwise happen. The growth in the number of consortia from one prototype OTA consortium in 2000 to approximately 31 today is a testament to the value both industry and government find in these functions.

Comparison of FAR and OTA Approaches

| | FAR Contracts | Direct OTA Awards | OTAs with Consortia |
|----------------------|--|---|---|
| Applicability | <ul style="list-style-type: none"> • Systems/Components/Technologies • Services • Purchases | <ul style="list-style-type: none"> • Technology Scouting • Single Needs • Short-fused Needs | <ul style="list-style-type: none"> • Portfolio R&D • Enterprise Engagement • Technology/Industrial Base Engagement |
| Features | <ul style="list-style-type: none"> • Support any type of procurement | <ul style="list-style-type: none"> • OTA not bound by FAR; broader pool of providers • Follow-on production allowed (if desired) | <ul style="list-style-type: none"> • OTA not bound by FAR; broader pool of providers • Follow-on production allowed (if desired) • Opportunity announcements targeted to members • Better defined requirements • Facilitated collaboration • Members training/enterprise learning curve |
| Limitations | <ul style="list-style-type: none"> • Providers limited by those that meet FAR standards (e.g. accounting systems) • Providers limited to those that monitor Federal Business Opportunities • Restricted communications between Gov. and providers | <ul style="list-style-type: none"> • Prototype Project • Significant NDC participation • Providers limited to those that monitor FBO | <ul style="list-style-type: none"> • Prototype Project • Significant NDC participation |

Source: Tony Melita, “Defense Consortia and Other Transactions,” April 14, 2018

Enterprise enablers exist across nearly all industries because they perform a valuable function. However, the consortium-based OTA continues to be criticized by some as injecting a “middleman” between the government and contractors. From Wall Street exchanges like NASDAQ to farm cooperatives, businesses pay to be part of intermediary associations because they provide value. If consortia did not perform a useful function, there would be nothing to stop contractors from working together among themselves to shut them down. Similarly, if government acquisition officials did not find them to be valuable, DOD-consortia partnerships would not have grown in scale and number. The costs of consortia are nominal for companies, and the membership dues are miniscule compared to overall business costs. As one former defense acquisition official put it, the fees are “so small to be effectively irrelevant from the standpoint of managing risks of waste for the U.S. taxpayer.” The fact pattern established over the last decade demonstrates that a wide variety of key actors, from government acquisition officials and industry members to researchers and academics, find significant value in consortium.

MEETING THE NEEDS OF THE MOMENT »

The problems that the OTA legislation was designed to address – mainly removing barriers to entry for industry and the need to foster innovation – are more acute today than at any time in recent history. Four trends are particularly concerning in this regard.

The first is the shift of R&D from the public to the private sector over the last half century. In 1964, the U.S. federal government funded roughly 67 percent of U.S. R&D and served as the leading spark for innovation in the United States and global economies. Today, the private sector, academia, and nonprofit organizations provide more than 88 percent of U.S. R&D spending, with private industry accounting for almost 70 percent of the U.S. total.⁸

The second trend is the declining U.S. share of global R&D. Just as the U.S. government no longer dominates U.S. R&D, the United States’ relative significance in global R&D has declined over many decades in both the public and private sectors. According to data from the National Science Foundation, global R&D equated to around \$2.2 trillion in 2017 with the U.S. share comprising about 25 percent. Based on the current government/industry split, U.S. government R&D equaled about 2.3 percent of global R&D, while U.S. private sector R&D amounted to 18.1 percent of global R&D with the academia and the nonprofit sectors providing the remaining share.⁹

This would not be a significant problem if the private industries fueling innovation for DOD were growing, but the third concerning trend is massive consolidation in this industrial sector. Christian Brose, longtime aide to the late Senator John McCain (R-AZ) and former staff director of the Senate Armed Services Committee, recently pointed out that in 1991 there were 107 major defense firms; a decade later there were five. “In the 15 years that followed,

⁸ William Greenwalt. *Leveraging the National Technology Industrial Base to Address Great-Power Competition: The Imperative to Integrate Industrial Capabilities of Close Allies*. Washington, D.C., Atlantic Council, 2019. P. 18.

⁹ Ibid

nearly 80 percent of new entrants that sought to work for the U.S. government eventually quit.... Some 17,000 companies left the defense business between 2011 and 2015 alone. And while more than 100 U.S. startups have grown into billion-dollar ‘unicorns’ in recent years, barely any have been in the defense sector.”¹⁰

The fourth trend is the reemergence of foreign adversaries with the capability to rival and even surpass U.S. technical superiority in certain categories of military capability. The 2018 National Defense Strategy formalized the end of an era in which terrorism and counterinsurgency were focal points of defense policy and underscored the “reemergence of long-term, strategic competition” with Russia as well as with a rapidly rising China. The national security risks associated with China are paramount since China’s system of defense modernization is competitive with that of the United States to a degree unrivaled since the early days of the Soviet Union. And unlike the national security challenges of the post-Cold War and post-9/11 eras, the competition with China will hinge in significant part on which country’s defense acquisition system will produce faster, cheaper, and better military capability.

China grasps the significance of “civil military fusion.” The distinction between private and public resources is effectively nonexistent in China. Chinese defense planners never have to grapple with the challenge faced by their American counterparts: how to encourage companies to contract with the government. This problem is now echoing loudly throughout Washington, D.C. A recent report by the Center for New America Security asserts that “the United States urgently needs a democratic response to civil-military fusion – one that harnesses the free market principles that have fueled the United States’ unparalleled private-sector innovation engine, and that unshackles the adaptivity and ingenuity of the U.S. armed forces.”¹¹ The United States is home to arguably the world’s greatest intellectual capacity, but because the U.S. government controls the defense market, such innovative potential can only be harnessed if the defense acquisition system is structured to accelerate innovation relative to the private sector.

Personal navigation systems, smartphone sensors, and even video games possess more advanced technologies than those found in some multibillion-dollar U.S. combat systems, according to Brose. Part of the reason for this is profit incentive and the fact that the margins are often higher for businesses to sell entertainment and convenience to a global marketplace than to sell protection and lethality to American soldiers. But another factor is the lack of flexibility and timeliness of the U.S. federal market. The innovation cycle time (need/opportunity-to-concept-to-development-to-production-to-market) is much faster in the civilian marketplace. Many of the technologies identified in the National Defense Strategy as vital for U.S. leadership, such as artificial intelligence, data analytics, autonomous systems, and cyber, are being led by the commercial market. Only lasers and hypersonic weapons are defense unique, but even laser technology has seen a significant evolution in commercial applications. Enticing companies leading in these fields into the DOD marketplace will require the effective use of creative contracting and the right intellectual property incentives. OTAs provide that flexibility.

¹⁰ Christian Brose, [The End of America's Era of Military Primacy](#), *Wall Street Journal*, 22 May 2020.

¹¹ Michele Flournoy and Gabrielle Cheftz, [Sharpening the U.S. Military's Edge: Critical Steps for the Next Administration](#), Center for New American Security, 13 July 2020.

FLEXIBILITY WITHIN LIMITS AND “FAR CREEP” »

While statutory authority gives wide discretion to construct new business arrangements and conduct OTAs, DOD continues to place significant limits on OTA structures in policy documents, guidelines, and “standard work.” Agreements Officers (AOs) – usually contracting officers (KOs) with minimal training in structuring OTAs – can find it easier and more familiar to create agreements that resemble FAR-like instruments. The issue is the inclination and willingness of AOs to act in the spirit and intent of OTA legislation and in support of the collaboration, innovation, speed-to-field, NDC, and commercial technology content of 10 U.S.C. 2371b. That’s because AOs are mostly sourced from a pipeline of warranted KOs who are educated and trained to exercise extensive regulatory powers under the FAR and DFARS; they are led by senior leaders who came through the same pipeline, and they are evaluated and promoted using those same skills, values, and related parameters. Additionally, government legal counsel that provides opinions regarding compliance, competition, intellectual property, and a myriad of contracting-related issues, has a similar cultural history and familiarity with the FAR and DFARS.

The resulting increase in FAR-related administrative documentation; the increase in cost to propose, evaluate, and award; the increase in time required to complete the process and deliver the capability; and the decrease in collaboration and innovation are significant. There are some indications that “FAR creep” is happening in response to questions by auditors who are more comfortable with FAR restrictions and protections. If this trend continues, OTAs, as a means to attract new entrants and innovation into the DOD market, will be curtailed with a corresponding negative effect on national security.

The most recent OTA guide published by the Office of the Secretary of Defense (OSD) in 2018 clarifies that there are two different OTA statutory authorities that can result in three different types of OTA agreements: (1) Research, (2) Prototype, and (3) Production. Research OTAs are authorized under 10 U.S.C. §2371 for basic, applied, and advanced research projects. According to OSD’s guidelines, these OTAs are intended “to spur dual-use R&D, taking advantage of economies of scale without burdening companies with government regulatory overhead, which would make them non-competitive in the commercial (non-defense) sector.”¹² Traditional defense contractors are also encouraged to engage in Research OTAs, particularly if they seek to adopt commercial practices or standards, diversify into the commercial sector, or partner with NDCs.

The second type of OTA is the Prototype OTA which is authorized under 10 USC §2371b to acquire prototype capabilities and allow for those prototypes to transition into production. Notably, prototypes are not defined in statute but the 2018 OSD guide describes a prototype project as “addressing a proof of concept, model, novel application of commercial technologies for defense purposes, or a process including a business process, among other types.” This provides some flexibility in interpretation. However, the central idea behind the language is to offer a streamlined method for transitioning into follow-on production without additional competition, thereby

¹² “[Other Transactions Guide](#),” Office of the Undersecretary of Defense for Acquisition and Sustainment, November 2018.

incentivizing contractors to participate. So long as the Prototype OTA agreement is competitively awarded and successfully completed, this can be a compelling incentive for hesitant companies to enter the market. Congress also entered this fray by attempting to introduce the concept of “operational prototypes” which are prototypes that after completion offer a residual operational capability. This type of prototype goes well beyond a mere “proof of concept” experiment to reduce the timeline to deliver capability to the warfighter.

Since 2001, Prototype OTAs also must meet one of the following conditions:

- At least one NDC participates to a significant extent *or*
- All significant participants are small *or* NDCs *or*
- One third of total cost provided by sources other than government (if no NDC participation) *or*
- The Agency Senior Procurement Executive determines circumstances justify use of a transaction that provides for: Innovative business arrangements not feasible or appropriate under a contract and opportunity to expand defense supply base not practical or feasible under a contract.

To illustrate the application of the prototyping/production requirements, initiatives awarded have the following requirements:

- Must have prototype deliverable(s)
- Are directly relevant to enhancing the mission effectiveness of military personnel, platforms, systems, components or materials proposed to be acquired or developed by DOD
- Are funded through Research, Development, Test, and Evaluation (RDT&E) or Procurement Appropriation (PA) type funds
- Are pre-Milestone C in the Acquisition Lifecycle
- Include significant participation by an NDC and/or nonprofit research institution or one-third cost share

The parameters of what constitutes an NDC is now one of the most important limits on OTA use. Congress provided a very broad definition of an NDC as “an entity that is not currently performing and has not performed, for at least the one-year period preceding the solicitation of sources by DOD for the procurement or transaction, any contract or subcontract for the DOD that is subject to full coverage under Cost Accounting Standards.” Because Cost Accounting Standards are used for awards of \$50 million and above, this allows most small businesses to qualify as an NDC. DOD’s 2018 *Other Transactions Guide For Prototype Projects* implicitly critiqued this definition noting that: “The effect of this narrow definition, is that a large number of entities will fall into the NDC category, including nearly all small business concerns, and even those firms that work exclusively with DOD.”

Exclusive focus on NDCs also obscures one of the other benefits of OTA which is the promotion of collaboration among industry, government, and academia. For example, the University of Alabama and Penn State University partner with consortia to share expertise between students, researchers, and professionals. Lab facilities and design work is shared for the mutual benefit of all the organizations involved. The confluence of theoretical level basic

research and its maturation to early applied research in a setting of bright undergraduate and graduate students is a powerful catalyst for innovation. In many instances, universities are partnered with University Affiliated Research Centers (UARC)s such as Applied Physics Laboratories (APLs), Research Institutions (RIs) and similar entities. These provide powerful communities that bring together theoretical sciences that mature into technology applications as a bridge between “the art of the possible” and the “speed of the need.” As an example, the National Armaments Consortium membership includes Georgia Tech Research Institute (GTRI) and Penn State University Applied Physics Laboratory (PSU APL). The Naval Information Warfare Systems Command also recently used OTA to award production of an Analytics Performance Assessment Capability that takes a larger Navy-wide data management challenge and offers a robust informational library in partnership with the Naval Postgraduate School, Naval War College, Defense Technical Information Center and the Center for Naval Analysis.

SPEED AND EFFICIENCY »

Another advantage of OTAs is the rapidity of the process in many cases. There is some debate over just how much faster OTA awards are compared to FAR contracts. Some note that the need to start from scratch on OTAs means more effort is needed to craft the agreements than would be the case with FARs contracts. However, nearly all consortia use base templates that provide a foundation and most in government and industry agree that there is no question OTAs are faster in most cases. The Procurement Acquisition Lead Time – the time from the request for a white paper to the time of award was cited to be around 120 days, compared to a range of 12-18 months to get from an RFP to an award under the FAR. In addition, modifications to requirements can occur more quickly under an OTA than a FAR contract. Spiral agreements also allow for more flexibility. For example, R&D funds can be expended incrementally during the project for activity that is relevant to the project but outside its initial scope, which is not possible under the FAR.

One example of an OTA-enabled rapid prototype is the case of the Stand-Off Precision Guided Munition (SOPGM). Originally, U.S. Special Operations Command (SOCOM) looked to use a typical FAR contract to meet the need for this munition, but soon realized this would never allow it to be acquired within the 4 - 6 month timeline as needed. As a result, the SOPGM team used Cooperative Research and Development Agreements (CRADA), OTAs, and open architecture systems to reduce the time needed for prototyping and fielding of the GBU-69B Small Guide Munition (SGM), by 75 percent. The innovative use of these contracting vehicles in conjunction with existing capabilities was critical to the program office’s ability to lower cost by 90 percent compared to past average acquisition timelines. In addition, the SOPGM team partnered with the National Security Agency to speed the development and certification of data link-enabled SOPGMs by leveraging efficiencies from industry test data to quickly meet certification requirements and reduce the certification timeline by 12 months.

COST SAVINGS »

The consortium-based OTA model can also save money. For example, the baseline cost for drafting a proposal under the FAR is anywhere between \$40,000 and \$250,000 while a typical cost for drafting a white paper for an OTA is in the range of \$10,000 to \$15,000. In addition, companies that submit a white paper can get feedback on those proposals that provide valuable information about the relevance of their technologies to potential customers. This allows for adaption and innovation in follow-on white papers.

FLEXIBILITY »

Another part of this story is the comparative advantage that OTA-based consortia have in adapting to changing acquisition demands. The structure and staffing of the Defense Department's acquisition workforce is largely set by Congress and the Pentagon's most senior leadership. When developments occur that warrant a shift or surge in resources, the DOD is limited in the degree and speed by which it can adapt. Even with ample funding, it takes DOD time and effort to move people and money when requirements change. Consortia are nimbler in this respect because they have in-house experts as well as the ability to rapidly surge manpower.

Single Point Contracting, which is the use of a Consortium Management Firm (CMF) –also known as a Consortium Administration Firm – to facilitate high volume transactions in the solicitation, award, and execution of government contracted effort, also provides useful flexibility. A CMF can augment a limited and resource-constrained acquisition workforce because the firm can work within U.S. government regulations while leveraging an outside entity that can staff up and restructure as needed. Through this award model, DOD can apply funds to OTAs and then move awards quickly because the funds have been prepositioned with the single point Consortium Management Firm. This is a more timely and efficient division of labor than exists under a FAR structure.

Typical Single Point Contracting Functions

| Features of Single Point Contracting in support of the government | Features of Consortium Management in support of members |
|--|--|
| <ul style="list-style-type: none"> • Solicitation Preparation/Webinars • Submission Portals • White Paper and Proposal – Receipt/Compliance Review • Award Processing/Cost Analysis Support • Project Administration/Close-out • Milestone/Deliverable Tracking • Invoice Receipt/Payment • Technical and Financial Reporting • Nontraditional Tracking/Reporting | <ul style="list-style-type: none"> • Consortium Leadership Support • Member Training and Mentoring • Collaboration Portal and Website • Collaboration Events/Membership Meeting • Member Application Processing • Member Database • Dues/Assessment Invoicing and Collection • Program Status and Financial Reporting • Conferences/Booth |

CRITIQUES AND CRITICISMS »

The use of OTA does come with potential disadvantages that some in Congress have recently highlighted. Most notably, OTAs rely heavily on commercial practices that do not provide the same FAR-based tools for transparency, audit, and protest.

The most widespread use of OTAs has been in research and development and/or prototyping. According to Frank Kendall, former Under Secretary of Defense for Acquisition, Technology and Logistics (USD AT&L), “The contract really didn’t matter very much because of the motivation and interests of the parties that existed outside the contract. These contracts, either fixed price or cost plus, tend to be ‘best effort’ contracts where the motivation to perform is largely about follow-on work....In many cases that’s all the incentive needed to stimulate a best effort.”¹³ Still, the desire by some in the oversight and contracting community for greater audit rights, cost and pricing data, and more robust government intellectual property rights could undermine the OTA model and drive innovative firms back into the commercial, rather than the defense market.

The absence of typical protest rights for awards also promotes concerns about dampening fair competition. The Government Accountability Office (GAO) lacks jurisdiction over OTA protests because GAO jurisdiction is based on the Competition in Contracting Act (CICA), which does not apply to OTAs. There are some mechanisms of accountability,¹⁴ but not necessarily to review a proper award decision. For example, the GAO will review a timely protest that an agency is improperly using its OTA. OTA awards that include government payments that exceed \$5 million also include a clause granting GAO audit rights.¹⁵ OTA awards also can be protested to the Court of Federal Claims.¹⁶ Yet these mechanisms do not necessarily address subjective awards.

Yet, while counterintuitive, there may well be more competition when conducting an OTA solicitation using a consortium. This is even though OTA does not require the “full and open” process provided by CICA and SAM.gov but only competition to the “maximum extent practicable.” This is because more potential contractors may view the requirement when it is actively promoted and informed by a consortium than when navigating the SAM.gov database, according to Tony Melita, who managed weapons investment in the Pentagon for over 20 years. For example, the National Armaments Consortium (NAC) is partnered with the Defense Ordnance Technology Consortium (DOTC) and the Aviation and Missile Technology Consortium (AMTC). It has approximately 900 members (companies and academia) who are focused on the technology domains and capability portfolios directly related to armaments and related “kill chain” applications. This large and diverse membership automatically receives all requirements and solicitations without having to search in SAM.gov. The NAC, and other consortia, also send

¹³ Frank Kendall, “[The New Other Transactions Authority Guide: Helpful, But Not Enough](#),” Jan 3, 2019.

¹⁴ Stuart W. Turner and Nathaniel Castellano, “[Other Transactions Authority \(OTA\): Protests and Disputes](#),” Arnold & Porter, June 28, 2018.

¹⁵ 10 U.S.C. 2371b(c); see also 32 C.F.R. § 3.7.

¹⁶ “[Other Transactions Guide For Prototype Projects](#),” Office of the Undersecretary of Defense for Acquisition, Technology, and logistics, August 2002, p. 38.

summaries of new opportunities/requirements to SAM.gov to alert potential industry partners outside of the consortia membership. One way to provide greater fidelity on the question of competition is to track and compare the number of views/clicks an advertisement receives. The consortia have such data. The U.S. government could monitor and track it as well for accessing requirements on SAM.gov.

This is one among multiple steps that can be taken to tackle valid concerns about insufficient transparency in OTAs. Such concerns prompted new language in the FY20 National Defense Authorization Act that requires the Pentagon to submit a report on the use of OTA to Congressional defense committees. The report must include a description of each OTA project, information on suppliers (including their status as traditional or nontraditional DOD contractors), the total value of each project, its purpose, and the status of prototypes along with a description of successes and challenges of using the OTA.

Fortunately, this information is available. It is collected by contractors, consortium management firms, and the government. However, the U.S. government enterprise system that tracks data related to FAR contracts (the Federal Procurement Data System, or FPDS), typically only records the top-level number of an award, not the more detailed information pertaining to performers at the “sub-contractor” levels. Because of these data entry limitations, the Single Point Contracting model some consortia use inadvertently creates an artifact that results in the FPDS showing the CMF as the “prime contractor” and the sole performer of what are actually numerous contracts awarded through the CMF. Another enterprise system built by the government that allows contractors to identify their sub-contractors and that links to USAspending.gov is currently being explored as a possible platform that can be used to increase the transparency of OTAs and identify the recipients of government funds.

CONCLUSIONS AND RECOMMENDATIONS »

Tackling today’s top national security challenges requires DOD to enlist innovative NDCs to work with the Pentagon. OTAs and the OTA-based consortium model can help the DOD harness this country’s great innovative potential, increase access to state-of-the-art technologies, reduce administrative lead times and bureaucracy, and help gather the Nation’s best and brightest companies, academics, and nonprofits to pool resources and develop the world’s premier warfighting capabilities.

We recommend the following:

Improve Strategic Guidance Within DOD to Address FAR Clause and Bureaucratic Process Creep

The current trend of FAR clause and process creep risks undermining the effectiveness and rationale for the use of OTAs.

There is a need to develop lessons learned and share them across agencies that use OTAs. There is no repository within the DOD to monitor the use of OTAs, store lessons learned, and convey and train the entire DOD enterprise in OTA best practices. Additionally, starting up a new OTA consortium or a local OTA capability at a U.S.

government command is not a trivial matter. There are many issues involving roles, responsibilities, authorities, legal, and procurement interactions, as well as the dynamic legislative and defense acquisition environment. These require a knowledgeable and informed collaboration between the legal, procurement, and program management communities. There should be a small office responsible for optimizing these functions within OSD by promoting best practices and lessons learned. OTA Title 10 authorities are vested in the Service Secretaries, so except for DOD agencies such as DARPA and DTRA, OSD has limits on its policy authority. But it does publish guidance and such guidance can be expanded.

This is important because as one observer noted, acquisition officials' operational practices are "like the Wild West." At one end of the extreme, OTAs look increasingly like FAR contracts to such a degree that some of the benefits of OTA are being compromised. The flexibility of OTA awards is essential to their value, but some level of standard methodology would increase efficiency in their execution. For example, templates or model contracting processes that can be tailored for the contemplated business would make it easier for all parties to use OTA vehicles. Given that part of the purpose of the OTA is to model commercial best practices, this makes sense as commercial contracts are not created from scratch but follow well-established best practices.

Expand Acquisition Workforce Training

Despite congressional direction there has been little specific training regarding the use of OTAs among the government workforce on how to engage with the consortia model.¹⁷ As indicated above, training of Agreements Officers to take advantage of OTA isn't being done in any systematic way. Training in the use of alternative contracting authorities that encourages the flexible and innovative implementation of existing authorities, rather than prescribing exact use, would be valuable. Matching experienced AOs with untrained officials is essential to inculcate best practices. For the foreseeable future, government acquisition talent will be limited both in capability and numbers and so consortia and CMFs will have to augment the government acquisition workforce. As such, there should be a greater focus on how to better leverage and establish best management practices for consortia managers and CMFs.

Develop Better Outcome Data

There is a need for increased transparency of NDC participation on OTAs both within consortia OTAs and direct OTAs. These data already exist at the CMF level but are not being used by the government. There is also a need to develop measures of success for research projects, prototypes, and successful transitions to production.

¹⁷ Section 867 of the National Defense Authorization Act for Fiscal Year 2018 requires the Secretary of Defense to establish a preference for using OTAs for science and technology and prototyping programs and Section 863 of the same Act requires the Secretary of Defense to provide training to management, technical and contracting personnel on the use of OTAs. SEC. 863. EDUCATION AND TRAINING FOR TRANSACTIONS OTHER THAN CONTRACTS AND GRANTS. Section 2371 of title 10, United States Code, is amended— (1) by redesignating subsection (g) as subsection (h); and (2) by inserting after subsection (f) the following new sub-section: "(g) EDUCATION AND TRAINING.—The Secretary of Defense shall— "(1) ensure that management, technical, and contracting personnel of the Department of Defense involved in the award or administration of transactions under this section or other innovative forms of contracting are afforded opportunities for adequate education and 2) establish minimum levels and requirements for continuous and experiential learning for such personnel, including levels and requirements for acquisition certification programs."

Promote Best Practices in OTA/Consortia Management

The terms and conditions, administration fees, and business processes of each OTA/consortium vary, leading to inefficiencies and additional costs for all involved. It would be beneficial to have a voluntary framework based on the best practices among various consortia but crafted in such a manner as not to promote ossification or stifle useful diversity. The flexibilities in the OTA concept and ability to attract new market entrants needs to be maintained in any standardization.

The OTA is not a panacea for all that ails the defense acquisition system, but it is one of the most powerful tools available for DOD to address some of its most critical challenges. It is increasingly vital that the acquisition workforce appreciates what Congress has given them in this unique authority. With creativity and understanding, the OTA can enlist America's most innovative companies to work on behalf of America's warfighters.