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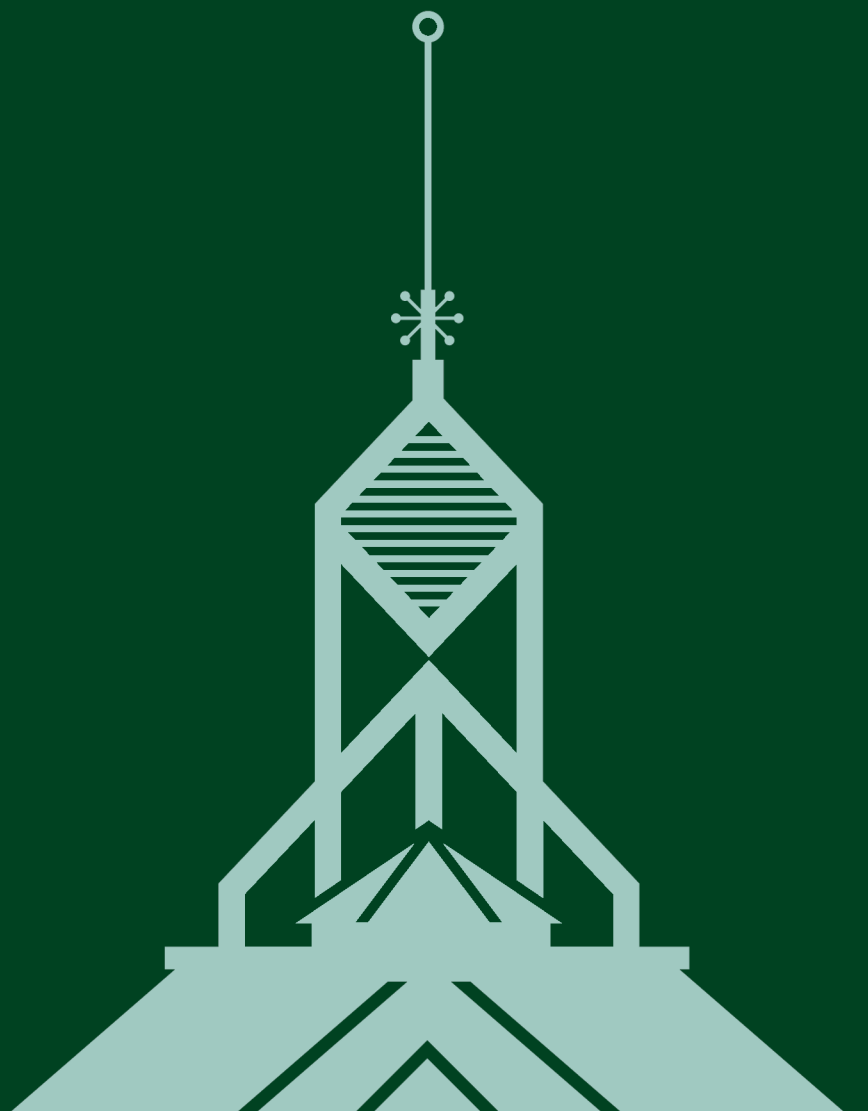
The Power of Many: Leveraging Consortia to Promote Innovation, Expand the Defense Industrial Base, and Accelerate Acquisition



The Power of Many: Leveraging Consortia to Promote Innovation, Expand the Defense Industrial Base, and Accelerate Acquisition

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Executive Summary

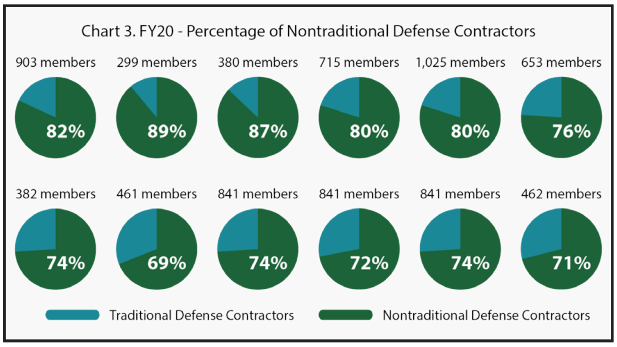
> con·sor·tium, plural consortia, also consortiums
>
> Definition: an agreement, combination, or group (as of companies) formed to undertake an enterprise beyond the resources of any one member
>
> —Merriam Webster Dictionary

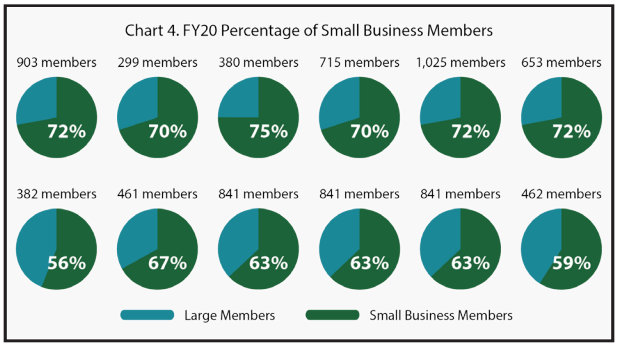
This is not another report on Other Transaction Authorities. In recent years, a multitude of reports have been written on the topic, and we do not intend to retread the same ground. But in our review of these reports, none have focused on the role of the consortia model despite consortia playing a pivotal role in high-profile Other Transactions (OTs), including the replacement for the Defense Travel System (DTS) and Operation Warp Speed.

This report focuses on the value proposition consortia and the consortia model bring to the government acquisition process. Specifically, this report explores:

- The history and origin of consortia,
- The role of consortium management firms,
- The growth of consortia in recent years,
- To what extent the consortia model can enable collaboration, accelerate acquisition, promote innovation, and expand the defense industrial base,
- Costs and risks associated with consortia, and
- Recommendations for the way forward.

As of May 2022, we identified 42 consortia supporting agreements: 38 with the Department of Defense (DoD) and four with other federal agencies. Twelve of these consortia provided data for this report. Over the course of our research, we found that the consortia model supports government acquisition efforts by promoting government–industry–academia communication, facilitating industry partnerships and collaboration, providing critical surge capacity to government acquisition, offering a ready, pre-established network of potential suppliers who have expertise in specific areas, and helping government program offices that do not have the requisite skill and experience in executing OTs. We also found that consortia help expand the defense





Note: Some consortia members are both small businesses and nontraditional defense contractors. Charts 3 & 4 on pages 12 & 13.

innovation base by bringing nontraditional defense contractors and small businesses into that base. (See Charts 3 and 4)

The consortia model is not a silver bullet for all acquisition; it is one tool in a full toolbox that when used properly, can provide real benefits to the government. However, not all instances of the consortia model are created equal. It is incumbent upon the government acquisition workforce to know when and how to use and manage consortia—and to not become overly reliant on the consortia model to the extent that the acquisition workforce loses critical core competencies of conducting acquisition. There is a wealth of data available at the consortia level that can be leveraged to gain insight into and more effectively manage consortia, but DoD has not taken the necessary steps to fully benefit from this data.

A word of caution. In part to safeguard the interests of taxpayers and the government, there is a powerful impulse to impose a robust statutory, regulatory, and policy regime to prevent against potential acquisition workforce errors, waste, or even fraud. We support transparency and oversight and have included in this report recommendations to promote these two important policy goals. At the same time, we caution against legislation and regulation that undermine the value proposition of the consortia model and OTs. Like much of government acquisition, the ability of DoD and other government agencies to leverage consortia (and to ensure proper oversight) depends primarily on the capabilities and expertise of the acquisition workforce, creating the right incentives, and striking the delicate balance between oversight and flexibility so as not to undermine the value proposition of consortia. To that end, in the last section of the report we provide seven specific recommendations for the consortia model's way forward:

- Improve visibility and transparency
- Enhance training and develop best practices
- Focus on transitioning technology to production
- Avoid additional regulatory burdens
- Preserve the definition of nontraditional defense contractor
- Promote collaboration and innovation through flexibility
- Expand the use of other transaction authorities

History of Consortia

EARLY CONSORTIA—RECIPE FOR SUCCESS

In the late 1990s, a group of scientists and engineers at Thiokol (a rocket and missile propulsion company now part of Northrop Grumman) was frustrated with how government contracted with industry. They were convinced that the government practice of developing a requirement and then having companies, individually, respond to the requirement, hurt innovation. With the aim of developing more creative solutions, the group set out to develop a new approach to contracting that encouraged collaboration and communication between government and a diverse team of industry participants throughout the acquisition process.[1] Thus, the National Warhead Energetics Consortium (NWEC) was born.[2]

Established in 2000, the NWEC partnered with the Army's Warheads and Energetics Technology Center at Picatinny Arsenal to jointly develop goals and objectives, create long-term nontraditional partnerships while at the same time maintaining a robust competitive process. The NWEC found early success with members from industry and academia, including Thiokol, Textron, Pennsylvania State University, Talley Defense Systems, Alliant Techsystems, AeroJet, Primex, GEO-CENTERS, United Defense, and others.

About the same time, individuals overseeing the munitions sector in the defense industrial base at the Office of the Secretary of Defense (OSD) were concerned with maintaining the industrial capabilities of this critical sector. OSD gathered the munitions technical directors across the DoD and this group recommended bringing industry and academia together to ensure engagement, collaboration, and preservation of expertise.[3] As a result, the Secretary of Defense established the DoD Ordnance Technol-

1. Interviews with Charlie Zisette, co-founder of National Warhead Energetics Consortium and current executive director of the National Armaments Consortium.

2. Notice Pursuant to the National Cooperative Research and Production Act of 1993—National Warheads and Energetics Consortium ("NWEC"), 65 Fed. Reg, 40693-4, June 6, 2000, https://www.federalregister.gov/citation/65-FR-40693.

3. Interview with Tony Melita, then director, Office of Munitions, Office of the Secretary of Defense, April 5, 2022.

Goals of the First Consortium Partnership

- An Army strategic plan for energetics and warheads that clearly defines the objectives, goals, and payoffs in terms Congress and DoD can understand;
- A fully coordinated requirements definition and research, development, test, and evaluation activities;
- Time-phased and measurable programs;
- Reduced duplication of effort;
- A proactive role for industry and academia in R&D planning;
- Increased industry investment;
- Shorter procurement timelines;
- Focused resources;
- Full partnering;
- Development and retention of critical skills;
- Acceleration of technology transition to weapon systems; and
- Continued U.S. battlefield superiority.

Source: Steven M. Nicolich, *The Warheads and Energetics Technology Center*, Army AT&L, *July–August 2000.*

ogy Consortium (DOTC), a collaborative partnership between DoD and the NWEC, now known as the National Armaments Consortium (NAC). To this day, DOTC serves as the focal point for ordnance system technology research and development across all DoD services. In the 22 years since the DOTC was conceived, more than 40 consortia have been established to focus on other DoD technical challenges. (See Appendix for a list of consortia)

DOD ADOPTION AND SCALING COLLABORATION

Government, industry, and academia across technical disciplines quickly saw how collaboration could enhance innovation. Changes to the law that made OTs a more accessible and attractive contract mechanism have further increased interest in consortia.

The Consortia Model

Using the consortia model requires the involvement of three entities—the government sponsor who sets the requirements and makes award selections, the consortia who bring together members from industry and academia, and consortia management firms who perform a number of non-governmental support activities for the government and the consortia.

GOVERNMENT SPONSOR

The process of establishing a consortium begins with a governmental requirement or need. A government program office or a sponsor then proposes that government, industry, and academia collaborate around a certain technology. The government sponsor uses competitive procedures to solicit proposals for an organization to bring together industry and academia members to create a consortium. Usually, there is a second competitive solicitation for a separate organization to manage the relationship between the government and the consortia. These entities are called consortium management firms.

CONSORTIA

Consortia are organized around technology focus areas and facilitate collaboration between government, industry, and academia. The focus on a specific technology area, pooling of requirements, and broad reach across industry and academia, endow consortia with both deep expertise and experience in their chosen domains.

Consortia charge dues and generally provide members with access to training on how to work with the government, information on upcoming and current opportunities, and details on other consortium members to promote collaboration. Additionally, consortia often train their members on business development, proposal development, cybersecurity, and project execution. Some consortia also charge an assessment fee on awards for providing contracting services and execution.

The government uses competitive procedures to create consortia and choose consortia management firms. The contract to manage consortia is recom-

Table 1. Examples of Consortium Management Firm Functions

For the Government	For the Consortium
• Solicitation Preparation/Webinars • Submission Portals • Whitepaper & 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	• Consortium Leadership Support • Member Training and Mentoring • Collaboration Portal and Website • Collaboration Events/Membership Meeting • Member Application Processing • Member Database (DD-2345, "good standing" tracking) • Dues/Assessment Invoicing and Collection • Program Status & Financial Reporting • Conferences/Booth

Source: Interviews with Advanced Technology International (ATI), a consortium management firm.

peted periodically, ensuring that competitive pressures improve the services provided by the consortia and drive down costs.

CONSORTIUM MANAGEMENT FIRMS

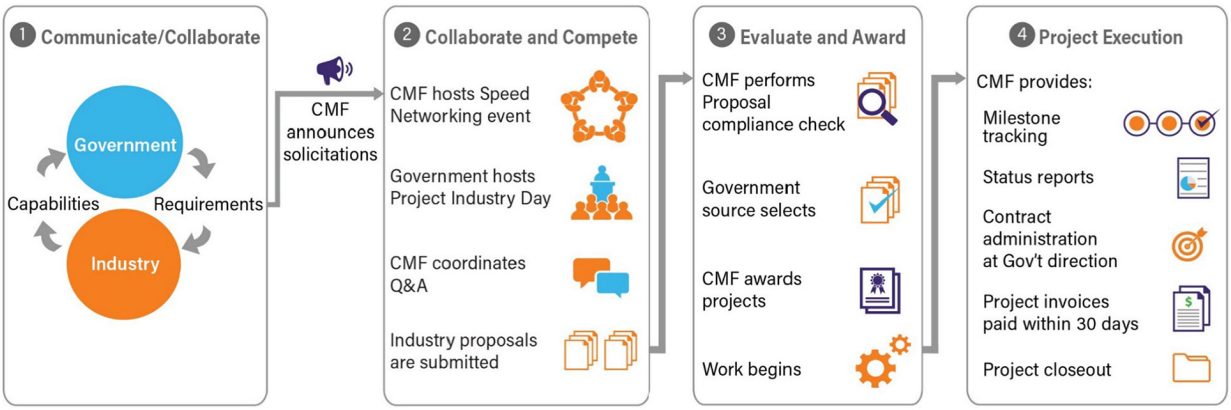
At first, government program management offices facilitated interaction between the government and consortia. Over time, the government found it more efficient and effective to leverage the special skills of a consortium management firm (CMF). The government employs the services of a CMF to provide a variety of services for the government (See Table 1), freeing up government personnel to focus on governmental activities such as evaluation of the proposals and awards, while the CMF handles technical execution of the contract, to include project administration, milestone and deliverable tracking, and invoicing. The CMFs can also provide small businesses and nontraditional defense contractors with mentorship, education, training, and invoicing support. These services not only help attract more participation from small businesses and nontraditional defense contractors, but also reduce both government and industry risk in helping these companies to overcome government acquisition hurdles.

CMFs are largely not-for-profit entities operating under competitively selected agreements with the government. Over time, this competition has improved the services provided by the CMF to assist the government sponsor by speeding up acquisition through a centralized program team with standard processes and reduced contracting complexity. Five consortium management firms manage 38 of the 42 consortia: Advanced Technology International (ATI - manages 19 consortia), System of Systems Consortium (SOSSEC - 9), National Security Technology Accelerator (NSTXL - 4), Consortium Management Group (CMG - 3), and National Center for Manufacturing Sciences (NCMS - 3).

THE CONSORTIA MODEL PROCESS

Just as each military service has its own unique culture and policies, consortia and consortium management firms each have unique processes and

Figure 1. Example of a Typical Consortia Model Process



relationships with the government. (See Figure 1) Regardless of the processes and relationships, the goal of each consortia is to improve collaboration and promote innovation for the government sponsor.

Generally, the procurement process begins with an initial problem statement by a government customer. Draft versions of these problem statements are frequently presented at a consortium collaboration event for government, industry, and academia to discuss. This collaboration helps inform and shape the government's problem statement, enhancing the quality of white papers that will be solicited from the consortium members.

The government engages the CMF with a request for white papers for the given problem set or capability desired. The CMF distributes the request for white papers to all members of the individual consortium.[1] The consortium and CMF will often assist members in tailoring their white paper to better meet the needs of the government and assist members who are not as familiar with the government acquisition process in responding to the call for white papers. Throughout this process, the government does not have privity of contract with members of the consortia.

Once submitted, the proposed white papers are evaluated for technical feasibility, risk, schedule, and cost, and the government—independent of the consortium management firm and consortium—makes the final source selection. The entire process generally occurs over days and weeks as opposed to the typical government contracting process which can take months, and sometimes years. The ability to execute in a compressed timeframe is not unique to the consortia model. Government organizations that possess extensive ties to industry, focus on OTs, and are not burdened by certain internal DoD rules that

1. One consortium management firm, National Security Technology Accelerator (NSTXL), does not require membership to receive the solicitations on projects for the three consortia they manage: Training and Readiness Accelerator (TReX) Consortium, Strategic & Spectrum Missions Advanced Resilient Trusted Systems (S2MARTS), and Strategic & Spectrum Missions Advanced Resilient Trusted Systems (S2MARTS) Research. However, NSTXL does require membership to bid on the projects.

hamper acquisitions, can also execute on a faster timeline. Defense Innovation Unit (DIU),[2] which shares these characteristics, has a similar track record of executing quickly.

Some consortia models further expedite the contracting award process by using a concept known as the basket provision. In this concept, the government identifies a white paper it deems worthy of award even if there is no identified funding available. In such a situation, the white paper is held or placed in a basket until funding is identified. This basket provision allows the government to rapidly execute needed prototyping once funding is available without having to start a new acquisition process.

OTHER TRANSACTION AUTHORITY AND THE CONSORTIA MODEL

The consortia model relies primarily on Other Transaction Authority to execute agreements. 10 USC 4021 (formerly, 10 USC 2371) provides DoD the authority to enter transactions other than contracts and grants to carry out basic, applied, and advanced research projects. Transactions other than contracts or grants are often referred to as Other Transactions. 10 USC 4022 (formerly, 10 USC 2371b) provides authority for DoD to carry out certain prototype projects and follow-on production.

Congress first granted DoD (through Defense Advanced Research Projects Agency or DARPA) limited authority to use OTs in 1989. Over the years, Congress steadily expanded DoD's authority to use OTs, allowing the Department to use OTs for basic, advanced, and applied research (in 1993); certain prototypes (in 1996); and for follow-on production for certain prototype projects (in 2001). In 2014 and 2015, Congress expanded and made permanent DoD's authority, leading to a sharp increase in the use of OTs. According to the Government Accountability Office (GAO),[3] from 2016 to 2018, DOD more than doubled its OT awards from 248 in 2016 to 384 (in 2017) and 618 (2018). According to senior DoD officials we spoke to, the Department expects to continue to increase its use of OTs.[4]

In its recent report *State of Competition within the Defense Industrial Base*, DoD highlighted the value of OTs, stating:[5]

> OTs, when leveraged appropriately, supply DoD with access to state-of-the-art technology solutions from traditional contractors and NDCs through a multitude of teaming arrangements tailored to the project and the needs of the participants. OTs and CSOs[6] foster new relationships and practices involving traditional and NDCs, especially those not interested in FAR-based contracts to support dual-use projects; encourage flexible, quicker, and cheaper project design and execution; and leverage commercial industry investment in technology development. The

2. According to the Defense Innovation Unit (DIU) website, "DIU is the only DoD organization focused exclusively on fielding and scaling commercial technology across the U.S. military at commercial speeds. DIU focuses on six technology areas where the commercial sector is operating at the leading edge: advanced energy & materials, artificial intelligence, autonomy, cyber, human systems, and space." See https://www.diu.mil/.

3. Government Accountability Office, Defense Acquisitions, *DOD's Use of Other Transactions for Prototype Projects Has Increased*, Washington DC, November 2019.

4. Based on multiple conversations with DoD officials, March–May, 2022.

5. Office of the Under Secretary of the Defense for Acquisition and Sustainment, *State of Competition Within the Defense Industrial Base* (February 2022), 13.

6. Commercial Solutions Opening codified in 10 USC 3458.

increased flexibility broadens the industrial base by leveraging commercial industry investment in technology development to incorporate DoD requirements into future technologies and products.

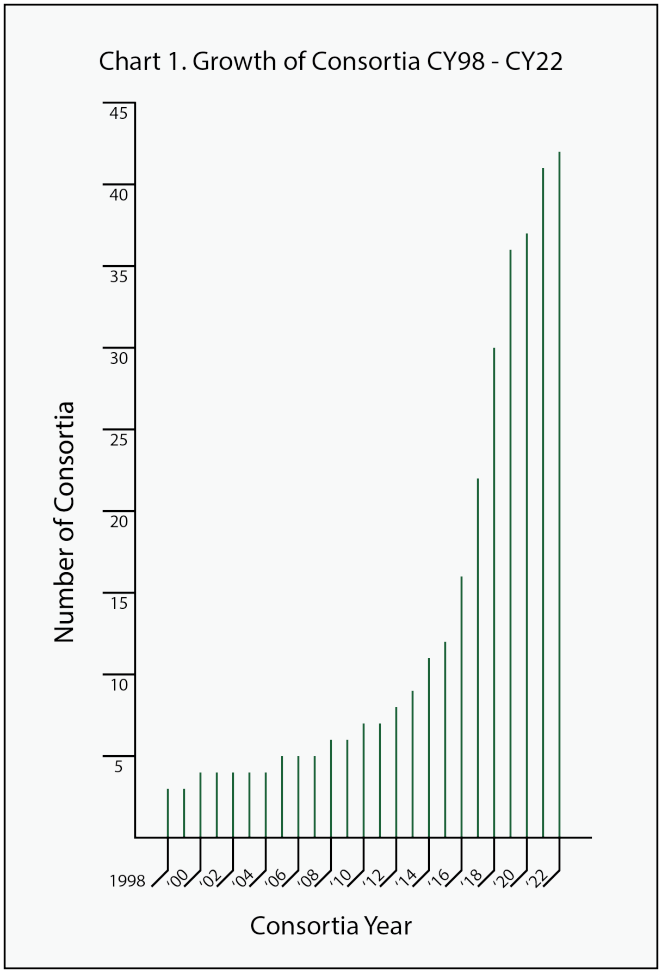
Some critics have argued that OTs spawned a cottage industry of consortia. But the reality is that consortia predate the recent surge in the use of OTs, and we believe that the value of OTs are enhanced through consortia. Similarly, the value industry places on consortia is reflected in the increasing number of companies (including nontraditional defense contractors and small businesses) and educational institutions joining and maintaining membership in such organizations.

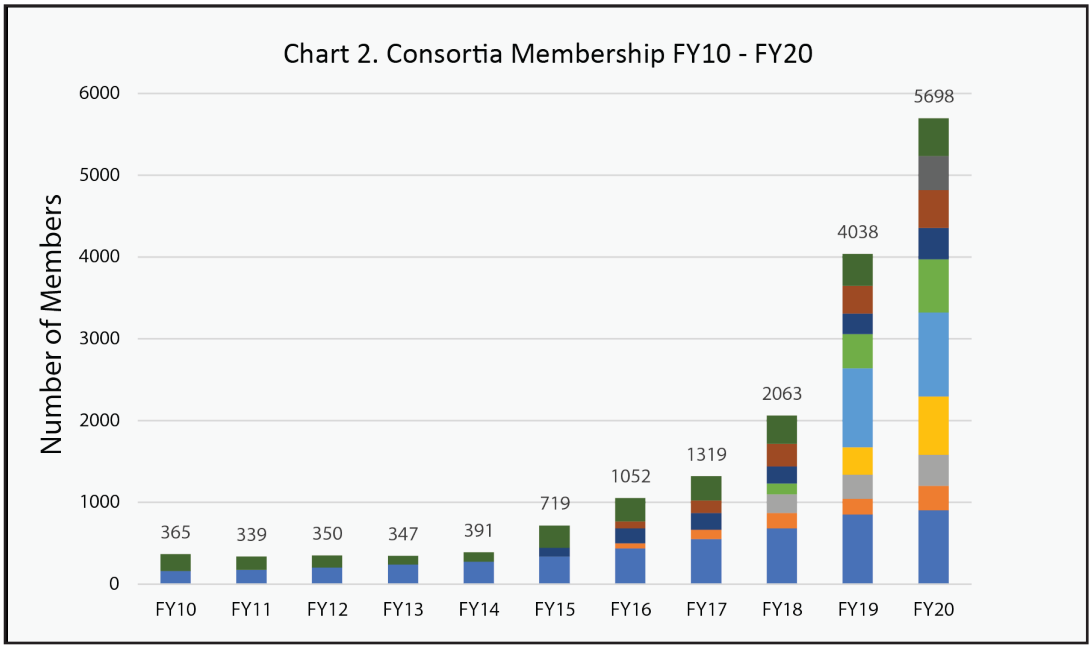
Consortia Composition

CONSORTIA GROWTH AND MEMBERSHIP

Both the total number of consortia and the membership of individual consortia have grown since 2000. In 2000, there was just one consortium. In 2022 there were 42 and of that number, 20 were established in the past five years. (See Chart 1) The recent growth in consortia is likely a result of the FY2016 National Defense Authorization Act (NDAA) and subsequent legislation which made Other Transaction Authority permanent and provided expanded authority.[1]

1. Section 815 of the National Defense Authorization Act for Fiscal Year 2016, Pub. L. No. 114-92 (2015).



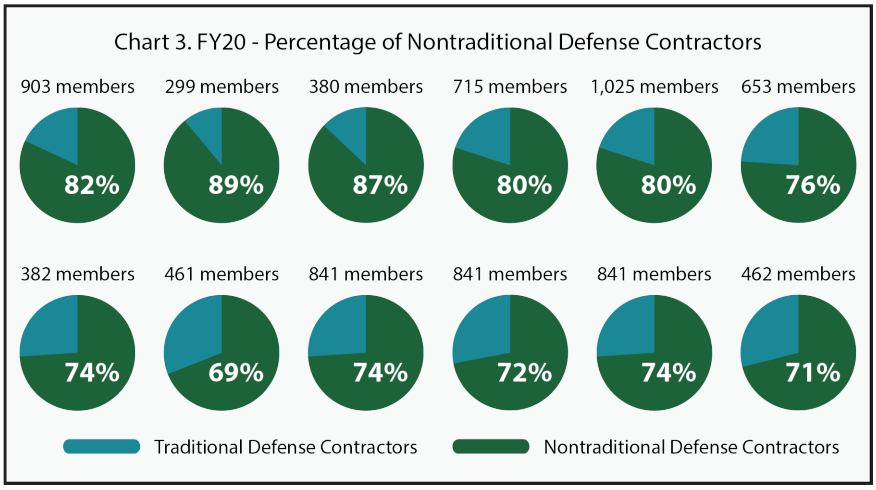


All 12 of the consortia that provided data for the report have experienced annual membership growth. One consortium's membership increased from 161 members in 2010 to 900 members in 2020. Another consortium attracted over 900 members in its inaugural year in 2019. From FY10 to FY20, total membership in the consortia surveyed increased more than tenfold, from 365 to over 5,600. (See Chart 2)

The term "nontraditional defense contractor," with respect to a procurement or with respect to a transaction authorized under section 4002(a) or 4003 of this title, means an entity that is not currently performing and has not performed, for at least the one-year period preceding the solicitation of sources by the Department of Defense for the procurement or transaction, any contract or subcontract for the Department of Defense that is subject to full coverage under the cost accounting standards prescribed pursuant to section 1502 of title 41 and the regulations implementing such section.

—Section 3014, Title 10 United States Code*

*The House passed version of the FY23 NDAA contains technical amendments to the sections listed in 10 USC 3014 to align with recent efforts to reorganize the defense acquisition statutes



Note: Some consortia members are both small businesses and nontraditional defense contractors.

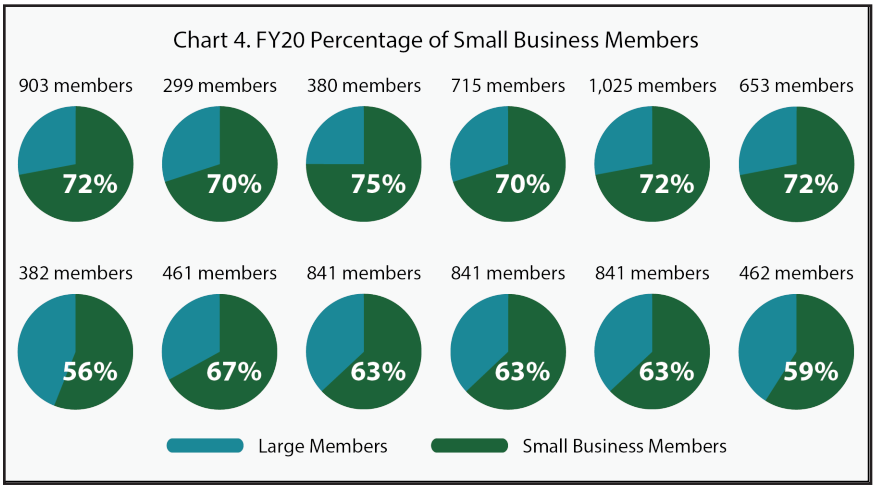
Over 4,500 companies who traditionally do not work with DoD (nontraditional defense contractors) are participating in 12 consortia who focus on DoD procurement.

NONTRADITIONAL DEFENSE CONTRACTOR PARTICIPATION

10 USC 4022 requires that DoD can use OTs for prototypes if one of the following is met:

- There is at least one *nontraditional defense contractor* or nonprofit research institution participating to a significant extent in the prototype project,
- All significant participants in the transaction other than the Federal Government are small businesses or *nontraditional defense contractors*,
- At least one third of the total cost of the prototype project is not paid for by the federal government, or
- The senior procurement executive for the agency provides a written waiver justifying the use of OTs.

Given the statutory focus, it is not surprising that nontraditional defense contractors make up a majority of consortia membership. Of the twelve consortia providing data, nontraditionals made up 69% to 89% of total membership. Across all 12 consortia, nontraditionals were 78% of membership and the total number of nontraditionals in these 12 consortia exceeded 4,500. (See Chart 3). This access to new companies and opportunities to expand the defense industrial base would not be as accessible without consortia.



Note: Some consortia members are both small businesses and nontraditional defense contractors.

SMALL BUSINESS PARTICIPATION

Consortia also appear to enhance small business participation in the defense industrial base. Of the consortia surveyed, small businesses accounted for 56% to 72% of their overall membership. (See Chart 4)

How Consortia Can Promote Innovation, Expand the DIB, and Accelerate Acquisition

With 42 consortia in operation as of May 2022, consortia, like companies, compete with each other and must provide value or risk going out of business. Consortia can provide value to the government by:

- Promoting collaboration,
- Expanding the industrial base,
- Providing support and surge capacity to the government acquisition workforce, and
- Providing access to a ready network of suppliers.

Consortia and consortium management firms are not an extension of the government and do not sit on the government side. It is the responsibility of the government acquisition workforce to conduct oversight and manage consortia, just like they must do with any contractor. Consortia and consortium management firms should not perform inherently government activities, and it is incumbent on the government acquisition workforce to ensure the integrity of the acquisition process.

> ***"I have yet to find a downside to the consortia model."***
>
> —Tony Melita[1]

PROMOTING GOVERNMENT–INDUSTRY COLLABORATION AND COMMUNICATION

Three of the 12 consortia provided information on their collaboration events, which are designed to bring together government, industry, and academia. These collaboration events are an example of how consortia begin to address the challenge of communication between government and industry. At the National Armaments Consortium (NAC) and DoD Ordnance Technology Consortium (DOTC) partnership events from FY19–FY21, the government briefed a total of 422 requirements and held on average 27 individual topic sessions. During that same time period, the Aviation and Missile Technology

1. Tony Melita, Director of Munitions, Office of the Secretary of Defense, 2001 and Interim Executive Director, National Spectrum Consortium, 2022.

Table 2. Collaboration Events, Fiscal Yeaars 2019–2021

	Number of Events	Average Participants	Average Requirements Briefed	Average 1-on-1's conducted (Gov to Mbr)	Average 1-on-1's conducted (Mbr to Mbr)
DOTC	5	583	84	226	129
AMTC	9	447	26	242	72
NEST	1	217	16	16	17

Source: Naval Energetic Systems and Technologies or NEST was established in August 2021.
Table 2 only includes data from its first inaugural event.

Consortium (AMTC) held nine events and reported an average of over 240 individual one-on-ones between government and members.[2] Meanwhile, the Naval Energetic Systems and Technologies (NEST) consortium held its first collaboration event in FY21 where 217 participants were briefed on 16 requirements. (See Table 2)

One of the oft-cited weaknesses of the defense acquisition system is a lack of early and frequent communication between government and industry. As a recent report by George Mason University's Center for Government Contracting argues, there needs to be increased focus on bringing "industry into the process early." Too often, requirements are fixed ahead of market research and experimentation, which leads to overly complex contracts, neglect of new technology insertion and fielding of obsolescent systems.[3] As one individual interview asked, "What is the value of avoiding a bad prototype?"

These events, where industry and government can discuss requirements—even before requirements are firmly set—foster an innovation ecosystem where information flows between industry and government, resulting in more informed requirements and solutions.

2. One-on-ones are times set aside for industry and academia to meet with the government to ask questions, gain clarification, and discuss capabilities. There are also one-on-ones organized for industry to meet with industry. These one-on-ones are the beginning of collaboration between not only government and industry but traditional and nontraditional defense contractors.

3. George Mason University Center for Government Contracting, Acquisition Next: A Playbook to Break the Industrial Age Paradigm (February 2022), 6.

Case Study A—Collaboration

In early 2019, the Department of Defense Industrial Base Policy Title III office released a solicitation under a Funding Opportunity Announcement for developing a domestic production capability for military grade propellant ingredient, hydroxyl terminated polybutadiene (HTPB). HTPB is widely used on the commercial market; however, the military grade requirements are different and only make up a small percent of the overall market.

DoD received no actionable responses to their solicitation and little engagement from industry.

DoD reached out to ATI and NAC for market research. On January 13, 2022 over 50 participants drawn from government (both DoD and NASA), academia, and industry, gathered virtually for a Critical Chemicals Collaborations Colloquium (C4) to discuss increasing and/or developing domestic production capability for a military grade propellant or Hydroxyl Terminated Polybutadiene (HTPB).

From the event, it was determined that that manufacturing HTPB in a consistent manner that would conform to the specific military requirements is difficult. Incorporating the feedback from the event, DoD significantly amended the acquisition strategy and re-scoped the request for information to develop an appropriate acquisition plan and budget. Based on the new acquisition strategy and early indications from industry, DoD officials believe that the new strategy will generate industry responses. According to a DoD official "The collaboration facilitated by the consortium enabled the government to pursue a well-informed strategy for this project."

Given its successful experience, the DoD Industrial Base Policy office plans to utilize the consortia model soon to collaborate with industry on emerging requirements in multiple sectors, to include critical minerals and hypersonics.

Interview with DoD official
March 16, 2022

FACILITATING INDUSTRY–INDUSTRY PARTNERSHIPS AND COLLABORATION

Competition plays an important role in defense acquisition. What is often overlooked is the value of industry collaboration where different players come together to develop a more robust capability for DoD. One of the value propositions of consortia is their ability to foster an ecosystem of cooperation that is sometimes absent in government contracting. In FY19, DOTC facilitated 12 collaboration events for members to work with other members to develop solutions for DoD. That same year, AMTC facilitated 82 individual sessions between members. (See Table 2)

Case Study B—Expanding the Defense Industrial Base and Transitioning to Production

SciTec, a Colorado-based small business, was a 60-person company in 2019. Due to their participation in consortia, the company has grown to 185 employees. SciTec is a member of the National Security Technology Accelerator (NSTXL), which manages the Space Enterprise Consortium (SpEC) and Training and Readiness Accelerator (TReX). SciTec is currently the lead on four efforts awarded through SpEC and a partner on another award through TReX.

"I've never seen a successful strategy for leveraging small businesses in the industrial base, except through the consortia model. Consortia provide immediate value to the company by being able to collaborate with the government. A small business would never be able to walk into the program manager's office and have an open conversation about requirements. But the consortia model allows for this, and this is huge for a small business." Dave Simenc, Executive Director, SciTec.

SciTec collaborated with the government to shape the prototype requirements to transition legacy software architecture for missile warning to an open framework. SciTec also provided awareness about the latest tools for collaborative-based open design and these informed the government's requirements.

SciTec, as the lead contractor, won a competitive prototype solicitation for the Future Operationally Resilient Ground Evolution (FORGE) Mission Data Processing Applications Provider (MDPAP) and earned the government's confidence in their capabilities. The government is now transitioning the prototype to production with SciTec again as the lead. Simenc credits SpEC. "We would never have had this opportunity without the consortia model," he said.

"Consortia is a real enabler for a nontraditional defense contractor to break into the defense industrial base. The government can test an NDC through a competitive prototyping solicitation and if the effort is a success can transition the prototype to production" added Simenc.

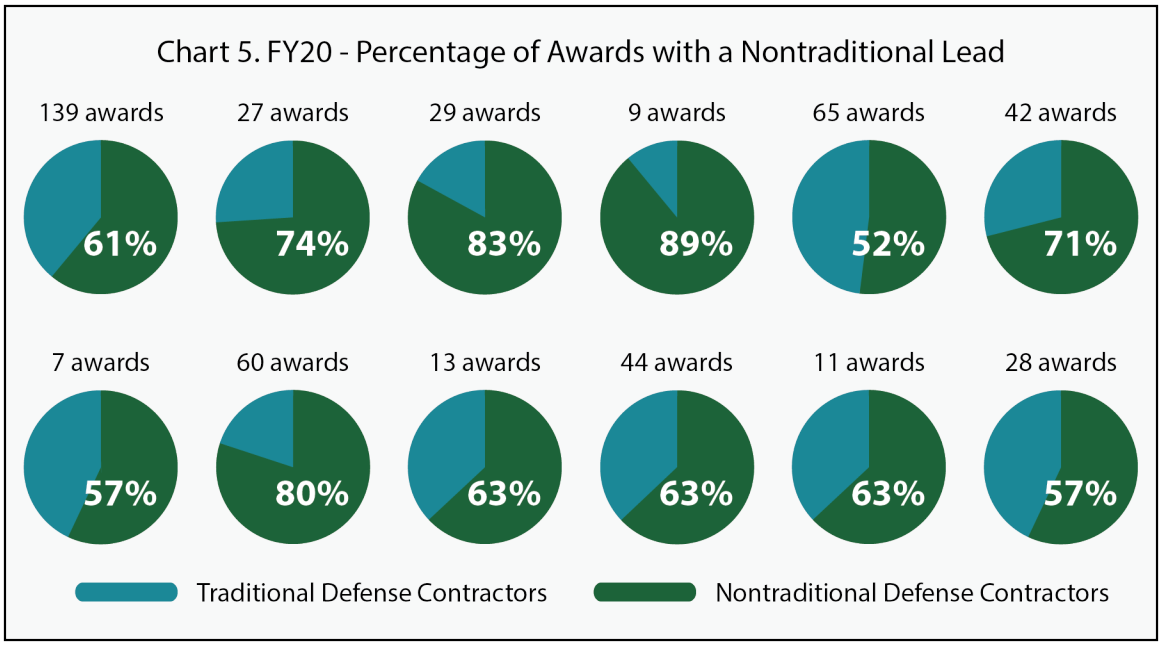
Dave Simenc
Executive Director, SciTec

EXPANDING THE INDUSTRIAL BASE WITH NONTRADITIONAL DEFENSE CONTRACTORS AND SMALL BUSINESSES

With all the focus on nontraditional defense contractor and small business participation, large businesses also value participation in consortia. Traditional defense contractors leverage other consortium members to expand their supplier base as well as increase their capacity for engineering services like modeling and simulation as well as systems engineering. Partnerships made within the consortium often expand to additional opportunities.

According to the Department of Defense FY2020 Small Business Procurement Scorecard, 25% of DoD prime contracts and 33% of subcontracts were awarded to small businesses.[4] Nontraditional defense contractors are a separate category, and some com-

4. Department of Defense, Department of Defense FY2020 Small Business Procurement Scorecard, January 30, 2022, https://business.defense.gov/Portals/57/Documents/DOD-2020.pdf.



panies are both small businesses and nontraditional defense contractors. Not all consortia track small business awards separately from nontraditional defense contractors, making it hard to parse the data for the two categories.

Nontraditional defense contractors not only made up a majority of the membership for consortia surveyed but also served as the lead contractor for the majority of contract awards, capturing between 52% to 90% of such contract awards in FY20. (See Chart 5) The average percentage of FY20 awards for the twelve consortia made to nontraditional defense contractors was 67% for a total of 312 awards.

Case Study C—Surge Capacity (Developing the COVID-19 Vaccine)

Early in the COVID-19 pandemic, the government's priority was to rapidly develop and manufacture a vaccine at scale. The government needed to reach the breadth of the pharmaceutical industry, determine vaccine capability and capacity, and contract at 'warp speed'. Operation Warp Speed, a partnership between DoD and the Department of Health and Human Services, was the largest vaccine effort in history. DoD leveraged its existing relationship with the Medical CBRN Defense Consortium (MCDC) and contacted the consortium manager, Mike Stebbins, to survey the pharmaceutical industry and gauge its ability to respond. Mike sent the almost 300 MCDC members a survey and the members in turn sent the survey to their networks. The responses started flow in and soon Mike was receiving thousands of responses on everything from vaccine development to respirators to face masks.

DoD asked MCDC to also send out a solicitation for advanced research and manufacturing of 100 million doses of a vaccine for COVID. MCDC published the solicitation on June 9, 2020, and received 11 white papers. DoD awarded four agreements (Novavax, Pfizer, Sanofi, and Janssen Research and Development). The first agreement on behalf of Operation Warp Speed was awarded within 27 days of the solicitation: the fourth, in less than two months.

The first COVID vaccines were administered in December 2020.

DoD did not have the network or infrastructure to effectively reach the broader pharmaceutical industry or sift through the thousands of responses that flowed in from consortium members. The consortia management firm did. *The consortium management firm waived their normal fee for the COVID vaccine agreements only charging for costs incurred.*

Mike Stebbins, MCDC Consortium Manager
who led RPP-20-11 COVID Pandemic Vaccine
Rapid Advanced Research and Development
(ARD) to Large Scale Manufacturing

PROVIDING CRITICAL SURGE CAPACITY TO DEFENSE ACQUISITION

The consortia model provides a unique surge capability, allowing DoD to quickly respond to unexpected emergencies and rapidly identify sources of supply and scale procurement critical items when time is of the essence. Specifically, the consortia model:

- Provides a ready network of potential suppliers
- Adds manpower and infrastructure to manage the acquisition process and assists companies with navigating the government procurement process

Providing a Ready Network of Potential Suppliers

The consortia model provides DoD pre-existing organizations consisting of members focused on a specific technology area or capability. When a need arises, consortia have a viable and ready-to-go network of suppliers consisting of industry, academia, and non-profit organizations, and an established communication process. This ready-to-go network not only saves time in exigent circumstances but

often expands DoD's reach to a larger pool of potential offerors and subcontractors who may not have previously considered working with the government. Additionally, offerors can collaborate with a larger group of suppliers in order to improve their proposed prototype.

Adding Manpower and Infrastructure to Support the Acquisition Process

Each consortium is sponsored by specific government program offices focused on given products or technologies. As such, consortia operate under preexisting agreements where both government and consortium members are familiar with the general terms, processes, and operating procedures used by the consortium. The consortia model also assists in distributing requirements to members, helping members understand and respond to requirements, and conducting other activities that would otherwise be performed by an overworked DoD acquisition workforce. While CMFs are barred from conducting inherently governmental acquisition activities, the preexisting infrastructure of agreements, processes, and personnel can significantly speed up acquisition timeliness—executing OTs faster than both traditional government acquisition and OTs managed by the government. At the same time, government officials are freed up to perform other critical tasks.

The advantages of using consortia to respond to large-scale, unanticipated, emergencies were on display during Operation Warp Speed, which leveraged the Medical CBRN Defense Consortium (MCDC) to prototype the first COVID vaccines (see Case Study C), and in January 2022, when DoD asked the National Armaments Consortium to host a Critical Chemical Collaboration Colloquium (C4) to assist in finding a source for Hydroxyl Terminated Polybutadiene (HTPB) used in many propellent formulations. (See Case Study A)

> *"Warp Speed would not have gone at Warp Speed if it was not for the Consortium."*
>
> —General (ret) Gus Perna
> Chief Operating Officer
> Operation Warp Speed

TRANSITIONING PROTOTYPES TO FOLLOW-ON PRODUCTION OR SERVICE CONTRACTS

Successful prototypes can be transitioned to follow-on production. Transitions to production contracts are difficult to trace as DoD often leverages consortia to prototype and follow-on efforts are executed by DoD, excluding consortia from the follow-on agreement. As such, consortia are unable to track good data on transitions.

Naval Systems Atlantic, through their Information Warfare Research Project (IWRP) consortium, have transitioned three prototypes to production contracts:

- U.S. Marine Corps' Low Altitude Range Communication System (LARCS),
- Chief of Naval Operations Navy Programming Division's (OPNAV N80) Analytic Performance Assessment Capability (APAC), and
- Defense Health Agency's (DHA) Healthcare Master Data Management (MDM) software tool.[5]

Our research indicates that DoD is not fully leveraging the OT authorities to transition to follow-on

5. Carmen Judge, *NAVWAR Transitions First Wave of IWRP Prototypes to Production*, October 19, 2020.

agreements, resulting in increased costs and delays in execution. This is a challenge that is not unique to consortia.

"These transitions into production are a huge win for the Navy and illustrate our ability to use this unique acquisition authority to rapid deliver solutions on behalf of our Sailors and Marines. I'm extremely proud of our IWRP team, who showed that bringing the right tool to the acquisition job can quickly bring results."

Rear Admiral Doug Small
NAVWAR Commander[6]

6. Ibid.

Other Processes Focused on Improved Contracting

The consortia model is not a silver bullet and is not always the right contracting strategy. There are a number of organizations and processes focused on expanding government-industry collaboration, spurring innovation, and seeking to speed up the acquisition process. This sampling of organizations and processes fulfill similar, but ultimately different, needs than consortia. Just like consortia and consortia management firms, each of these organizations require funding. Some of this funding is directly appropriated and some is collected as fees.

DEFENSE INNOVATION UNIT COMMERCIAL OUTREACH

The Defense Innovation Unit (DIU) was established in 2015 to accelerate the early adoption of emerging commercial technologies. Originally focused on technologies developed in Silicon Valley, DIU has grown its outreach and is now physically represented in five locations: Mountain View, California; Austin, Texas; Boston, MA; Chicago, Illinois; and Washington, DC.

According to its annual report, DIU published 26 solicitations in FY21, received 1,116 commercial proposals, and issued 72 awards for prototypes using OTs. Ultimately, eight of the prototypes were successfully transitioned to DoD end users through a production or service contract. DIU also reported that since June 2016, 86% of awards have been made to non-traditional businesses and 74% to small businesses.

DIU plays a critical—but different—role in the innovation ecosystem than the role of consortia. DIU works closely with the military services to identify specific national security needs and then leverages their capabilities to go to the commercial sector and solicit proposals for innovative solutions that meet the identified need. DIU also sits on the government side of the contracting process, which creates a different relationship with the requiring entity than consortia, who have a contractual relationship with the requiring entity. DIU has delivered results.

Consortia provide slightly different, complimentary capabilities to the Department of Defense by creating and nurturing long-term ecosystems of innovation and collaboration that focus on defined technologies and capabilities. These consortia-nur-

"DoD must continue leveraging acquisition alternatives that facilitate speed, agility, and scaling; buy technologies that exist and build what we must; and continue to streamline our processes with flexible funding cycles."

DIU FY 2021 Annual Report Preview

tured ecosystems keep working to push the envelope in technology areas and stand at the ready with a pool of potential solution-providers to solve DoD challenges as they arise. This long-term approach nourishes a large pool of potential providers. Consortia also offer a uniquely robust surge capacity.

DEFENSE LOGISTICS AGENCY INDUSTRY DAYS

The Defense Logistics Agency (DLA) generally holds multiple industry days and supplier conferences throughout the year. DLA uses their annual Industry Days to share a demand forecast with industry. The DLA website includes a presentation containing historical demand forecast for the following categories: aviation, land, maritime, industrial hardware, clothing & textiles, construction & equipment, medical, and subsistence. The same briefing informed suppliers that future opportunity forecasts would be provided via industry association events (e.g., National Defense Industrial Association).

DLA's use of industry associations to advertise future opportunities is analogous to the government's use of the consortia model to solicit white papers insofar as it leverages an existing organization's ability to quickly communicate with a large pool of potential solution providers and to assist members in responding to DoD needs. Like consortia, industry associations collect membership fee or dues. Some industry associations base dues on a contractor's defense-related revenue, which could range from $500 to tens of thousands of dollars annually, depending on the size of the company. Trade associations do not take any assessment or percentage of awards for their services, nor do they provide administrative assistance to the government or industry. Consortia membership dues also range from zero to thousands of dollars based on the size and revenue of the company. (See Appendix A) This does not include assessment fees charged for providing contracting and administrative services.

In addition to industry days, DLA sponsors and leverages two consortia to accelerate acquisition and expand their industrial base reach: American Metalcasting Consortium (AMC) and Forging Defense Manufacturing Consortium (FDMC). AMC integrates top academic researchers with the four leading metalcasting industry associations. Through this collaboration, DLA has access to 95% of the U.S. metalcasting industry. The value of consortia is evidenced by DLA, which even with its robust outreach to industry and extensive experience in hosting industry days, finds value in sponsoring and collaborating with two consortia.

GENERAL SERVICE ADMINISTRATION SCHEDULES

The General Services Administration (GSA) is another example of an organization that assists federal agencies in reaching a wider pool of potential contracting candidates. GSA charges an Industrial Funding Fee (IFF) of 0.75% to contractors selling their products and services through the GSA Schedules. The GSA negotiates a price for a product or service with the supplier. The government customer orders the product or service and pays the price of

the product plus 0.75% to the supplier, regardless of the value of the contract. The supplier remits the IFF back to the GSA.

INTERAGENCY CONTRACTING

Some federal agencies use interagency contracting to assist other agencies in contracting for goods and services, including GSA, the National Institute of Health, NASA, and DoD. For example, GSA runs the Assisted Acquisition Services Program which is a fee-for-service program with the fee based on the overall cost of the project. Through this program, GSA helps other agencies in establishing the cost, schedule, performance of the contract as well as selecting the appropriate funding mechanism.

According to a 2011 GAO report (the most recent report on the topic), "Fee rates for the selected interagency contract programs range from 0.25 percent to 12.0 percent of the value of the order for fiscal year 2011 and vary depending on the level of service and type of acquisition services provided."

The DoD IG Audit of Other Transactions Awarded Through Consortia

The DoD Inspector General (IG) published an *Audit of Other Transactions Awarded Through Consortiums* on April 21, 2021. The purpose of the audit was to "determine whether the DoD planned and executed other transactions (OTAs) awarded through consortiums in accordance with applicable other transactional authority laws and regulations."[1] DoD IG reviewed a non-statistical sample of 13 OT awards and made several recommendations.

The focus of the report was on how DoD approaches and executes OTs through consortia and not on the consortia themselves. The report did not discuss whether consortia are effective methods for executing OTs or acquiring capabilities. Some of the recommendations appear to be applicable to OTs generally and not consortia specifically, such as the recommendation that DoD "implement DoD-level guidance establishing a standard Agreements Officer delegation and warrant process."[2]

The DoD IG recommendations identified ways the DoD could increase the collection of data, clarify policy, update training, and improve security controls to continue to leverage the value of consortia. According to DoD's response to the audit, DoD will update the department's guidance for use of other transaction authorities.

The DoD IG raised concern over transparency of the DoD's tracking of financial data of OTs. This has been a long-standing concern of Congress and is not specific to consortia. Over the last few years, Congress has required DoD to improve data collection for OTs. Despite these efforts, DoD still lacks reliable and comprehensive data, including a lack of data on the transition of prototypes to follow-on production. Based on our research and the data in this report, the relevant data to conduct effective management and oversight of consortia is available. Consortia track a wide range of data that DoD could use.

A number of DoD IG recommendations focused on what it believes should be DoD policy even when neither law nor regulation requires the actions proposed by the IG. Of the 13 recommendations, more than half call for DoD to either develop policies, implement additional guidance, establish require-

1. Department of Defense Inspector General, *Audit of Other Transactions Awarded Through Consortiums* (April 23, 2021), i.
2. Ibid., 13.

Recent Congressional Call for Transparency

- Section 819, FY20 NDAA: DoD directed to submit report to Congress on use of other transaction agreements
- Section 833, FY21 NDAA: DoD directed to maintain a listing of other transaction authority consortia.
- Section 833, FY21 NDAA Conference Report Language: GAO directed to report on the DoD's use of consortia.
- Section 825, FY22 NDAA: DoD directed to collect and GSA to publish detailed data on DoD's use of other transaction agreements.

ments, or determine requirements that should be included in OTs. For example, the IG recommended that DoD should assess "the inclusion of basic protest language in OT solicitations and establish processes or best practices to address OT protests."[3] These recommendations raise concerns that if implemented, the primary value of OTs—their flexibility and speed—will be eroded by the layering on of DoD policies and guidance that are not required, for good reason, by law or regulation.

While a few of the IG's recommendations, such as calls for increasing visibility into data, improving training, and providing more guidance, can help DoD better leverage OTs, it is important to guard against adding back requirements and regulations that undermine the value of OTs.

3. Department of Defense Inspector General, A*udit of Other Transactions Awarded Through Consortiums* (April 23, 2021), 18.

A Way Forward—Recommendations for Extracting More Value from OTs and The Consortia Model

OTs are a powerful tool that in the right circumstances, and when executed properly, can provide enormous benefits. If used without appropriate oversight, any contract vehicle can result in negative effects. The success of OTs, and the whole acquisition system, depends first and foremost on the acquisition workforce. As the 809 Panel[1] stated in their interim report "One of the most important ingredients to achieve acquisition reform is a transformation in the culture of DoD and Congress."[2] The 809 Panel went on to argue that

> . . . the management structure and decision-making process within DoD are too bureaucratic and encumbered by numerous layers of review. Successive reviews do not necessarily add substantive value, but they do add time to the process and add to the number of people who can say no or influence a program, including people who do not have a stake in the outcome of the acquisition.

OTs seek to cut through much of the bureaucracy and empower the acquisition workforce to have flexibility to make decisions to get the best solution–and best value–for the government. When evaluating OTs generally, and consortia specifically, government must create the delicate balance between appropriate transparency and oversight, without veering into the trap of building a regulatory and policy burden that undermines the very value of OTs and consortia. There are steps that DoD can take to improve insight and oversight *without undermining the value of consortia*, particularly in the areas of

1. The Advisory Panel on Streamlining and Codifying Acquisition Regulations (Section 809 Panel) was created in Section 809 of the FY 2016 National Defense Authorization Act (Public Law 114-92). The panel consisted of 16 members required to be recognized experts in acquisition and procurement policy with diverse experiences from the public and private sectors. The panel was charged to deliver recommendations that could transform the defense acquisition system to meet the threats and demands of the 21st century. From August 2016 to its conclusion in July 2019, the panel released five publications: an interim report, a final report in three volumes, and a roadmap organizing all 98 recommendations within 4 founding principles. Together, these 98 recommendations chart a path for both evolutionary and revolutionary change in the defense acquisition system. See https://discover.dtic.mil/section-809-panel/.

2. Ibid., 31

data analysis, workforce training, risk management, and using authorities provided by Congress. Below are some recommendations that can empower the workforce, increase the effectiveness of OTs, and enhance DoD's effective use of consortia.

IMPROVING VISIBILITY AND TRANSPARENCY

Data visibility and transparency have been long-standing challenges for OTs. The 2019 CRS report *Department of Defense Use of Other Transaction Authority: Background, Analysis, and Options for Congress* found that "DoD lacks authoritative data that can be used to measure and evaluate the use of other transaction authorities" and suggested that Congressional reporting requirements may be a result of congressional frustration with a lack of transparency and data on how DoD uses OTs."[3] Similar visibility and transparency concerns have been raised by GAO, the DoD IG (as discussed above), and Congress. The lack of publicly available data sources made it difficult to draft this report. But the data exists.

Some of the data concerns were addressed in previous Congressional action, such as Section 819 of the FY19 NDAA. However, these requirements did not address the limitations of DoD tracking—and the Federal Procurement Data System (FPDS) displaying—data on OTs awarded through consortia. At the same time Congress expressed concern over visibility into OTs awarded through consortia, they were similarly concerned with the lack of data and visibility into OTs generally, and task orders awarded under 10 USC 3401—including under contracts issued to a federally funded research and development center (formerly 10 USC 2304d - Task and delivery order contracts: definitions). To address these concerns, Section 825 of the FY22 NDAA directed GSA to update the FPDS to track data to provide increased visibility and transparency into these issues. Specifically, Congress directed DoD to collect, and GSA to track in FPDS the following information participants to transactions (other than the Federal Government);

- Each business selected to perform work under the transaction by a participant to the transaction that is a consortium of private entities;
- The date on which each participant entered into the transaction; and
- The amount of the transaction.[4]

We recommend DoD and GSA accelerate their efforts to comply with the FY22 NDAA statutory requirements to collect and track data on all OT financial transactions in FPDS.

ENHANCING TRAINING AND BEST PRACTICES

As the DoD enhances its training on OTs, DAU should develop training for its acquisition and contracting professionals on how to work with and manage consortia. Part of this training should include examples of all aspects of the OTs, to include prototypes and follow-on production authorities. Additionally, the DoD should incorporate best practices on how to leverage consortia to avoid complexity, minimize acquisition timelines, and standardize projects.

In addition to training, establishing consortia model best practices would also allow the DoD to improve on a tool that is accelerating acquisition and expanding the industrial base. Best practices could include data collection and reporting to evaluate the value of the consortia model, the importance of

3. Ibid., 10.
4. National Defense Authorization Act for Fiscal Year 2022, Pub. L. No. 117–81 (2021).

collaboration events, the role of consortia and what activities consortia should and should not conduct with regard to government employees, and how to attract and ensure nontraditional defense contractor participation.

We recommend DAU develop training for its acquisition and contracting professional on how to work with and manage consortia as well as enhance the existing training on OTs to include prototypes and follow-on production authorities.

FOCUSING ON TRANSITIONING TECHNOLOGY TO PRODUCTION

In addition to visibility and transparency of the DoD's use of Other Transaction Authorities, research for this report found it difficult to connect successful prototypes to follow on production activities. In Section 825 of the FY22 NDAA, Congress directed DoD to collect, and GSA to track in FPDS, the following information for follow-on contracts, agreements, or transactions:

- Identification of the initial covered contract or transaction and each subsequent follow-on contract or transaction;
- The awardee;
- The amount; and
- The date awarded.[5]

Tracking information about the follow-on contracts, agreements, or transactions will provide the opportunity to prove the value of the consortia model for collaboration and innovation.

DoD is not fully leveraging the OT authorities to transition to follow-on agreements, resulting in increased costs and delays in execution. This is a challenge that is not unique to consortia.

We recommend that DoD increase its use of follow-on production to speed up the transition process, decrease costs associated with FAR-based follow-on awards, and entice more companies to work with DoD. The promise of follow-on production is a powerful incentive for companies and can foster increased competition. Companies do not bid on prototypes to win prototypes, they bid on prototypes with the hope of moving to production at a later date. We heard from companies that if they do not expect to transition to production using OT authorities, they are less likely to commit the same level of resources and are less likely to compete for prototype projects.

AVOIDING ADDING REGULATORY BURDENS

At the beginning of the response to COVID-19, there was a realization that FAR based traditional government contracts and contracts for commercial items both contained force majeure provisions. As example, both FAR Clause 52.249-14[6] and FAR Clause 52.212-4(f)[7] includes "epidemics" and "quarantine

5. Ibid.

6. FAR 52.249-14 covers Excusable Delays, "(a) Except for defaults of subcontractors at any tier, the Contractor shall not be in default because of any failure to perform this contract under its terms if the failure arises from causes beyond the control and without the fault or negligence of the Contractor. Examples of these causes are (1) acts of God or of the public enemy, (2) acts of the Government in either its sovereign or contractual capacity, (3) fires, (4) floods, (5) epidemics, (6) quarantine restrictions, (7) strikes, (8) freight embargoes, and (9) unusually severe weather. In each instance, the failure to perform must be beyond the control and without the fault or negligence of the Contractor. Default includes failure to make progress in the work so as to endanger performance."

7. FAR 52.212-4 also covers Excusable delays, "(f) Excusable delays. The Contractor shall be liable for default unless nonperformance is caused by an occurrence beyond the reasonable control of the Contractor and without its fault or negligence such as, acts

restrictions."[8] However, non-FAR based agreements do not always contain these clauses. Some might argue this would be a welcome added clause to OTs. OTs give complete flexibility on the contents of the agreement and mandating inclusion of certain provisions is a slippery slope.

We recommend Congress and DoD avoid adding regulatory burdens to OTs.

PRESERVING THE DEFINITION OF NONTRADITIONAL DEFENSE CONTRACTOR

Section 824 of the FY22 NDAA requires the DoD to assess the merits of changing the definition of nontraditional defense contractor to consider the status of the parent company. The purpose of the definition of a nontraditional defense contractor in statute is to expand the defense industry base to new participants. The criteria used as to whether a contractor is not already participating within the defense industrial base is whether the contractor is performing, or has performed within one year, under a contract or subcontract subject to full coverage under cost accounting standards.

We recommend keeping the definition of nontraditional defense contractor as is in order to maintain focus on expanding the defense industrial base.

PROMOTING COLLABORATION AND INNOVATION THROUGH FLEXIBILITY

Congress required DoD in Section 824 of the FY2022 NDAA to assess the merit of alternative authorities "to more effectively and efficiently execute agreements with private sector consortia." The first consortium used a FAR-based contract, and the consortia model is not wholly dependent on OTs.

We recommend maintaining, and not restricting, authorities that promote collaboration and innovation, and are applicable to the consortia model. We are not aware of any 'problem' with consortia that needs to be fixed through legislative action.

EXPANDING THE USE OF OTHER TRANSACTION AUTHORITIES

Congress also required the DoD in Section 824 of the FY22 NDAA to assess the merits of using other transactions for other activities without the need for prototyping to award agreements for:

- Direct to production from non-government funded successful prototypes,
- Procurement,
- Sustainment,
- Support of the organic industrial base, and
- Prototyping of services or acquisition of services.

This is an opportunity for the DoD to embrace the potential expansion of the authority. OTs are an effective tool and can be applied to other circumstances. For example, OTs could also provide substantial benefits to installations. While it will require extra work on the behalf of the DoD to update their policies and expand training of personnel, the opportunities to use OTs, and consortia, to collab-

of God or the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, unusually severe weather, and delays of common carriers. The Contractor shall notify the Contracting Officer in writing as soon as it is reasonably possible after the commencement of any excusable delay, setting forth the full particulars in connection therewith, shall remedy such occurrence with all reasonable dispatch, and shall promptly give written notice to the Contracting Officer of the cessation of such occurrence."

orate and innovate on the DoD's most costly problems, is pioneering. Allowing DoD to continue to leverage the consortia model is an important ingredient in facilitating DoD's ability to fully leverage the benefits of OTs.

We recommend amending 10 USC 4022(a)(1) to expand the use of Other Transaction Authorities to include for installations, for sustainment activities, and for the organic industrial base; to allow for direct to production from non-government funded successful prototypes; and to allow for prototyping or acquisition of services.

About the Authors

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Moshe Schwartz is President of Etherton & Associates. He served as Executive Director of the congressionally mandated Advisory Panel on Streamlining and Codifying Acquisition Regulations and spent 15 years providing analysis and legislative support to Congress on acquisition policy and industrial base issues, including at CRS and GAO. He has testified before Congress and written extensively on a wide range of acquisition and industrial base issues. He has also served as senior advisor to the Commission on Wartime Contracting in Iraq and Afghanistan, advisor at ISAF headquarters in Afghanistan, and taught at both Carnegie Mellon University' Heinz School of Public Policy and National Defense University's Eisenhower School for National Security and Resource Strategy.

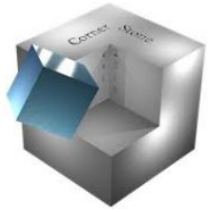
STEPHANIE HALCROW

Stephanie Halcrow, Senior Fellow at George Mason University's Center for Government Contracting is also President of The Halcrow Group. She most recently served as a Professional Staff Member on the House Armed Services Committee (HASC) where she led the efforts to develop, position, and implement the HASC Ranking Member's acquisition reform strategies into tangible legislative solutions, garnering bipartisan and bicameral support as well as soliciting industry and federal government input. Stephanie is deep-rooted in the academic and public policy community and currently serves as a Senior Fellow for Defense Industrial Base Health and Resiliency with the National Defense Industrial Association and as an external advisor to the Department of Defense's Acquisition Innovation Research Center.

Appendix
List of Government Sponsored Consortia

The Consortia provided on the subsequent pages builds off the list found at: www.aida.mitre.org/ota/existing-ota-consortia

Joint Consortia
Air Force Consortia
Army Consortia
Navy Consortia
Non-DoD Consortia

JOINT CONSORTIA	
AMC AMERICAN METALCASTING CONSORTIUM	**American Metalcasting Consortium (AMC)** (www.amc.ati.org) **Government Sponsor:** Defense Logistics Agency **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Develops and implements the best metalcasting technologies and processes to support DLA's mission of improving the readiness and mission effectiveness of U.S. warfighters. Better metal components ensure technological superiority on the battlefield, at sea, in the air and beyond the stratosphere. **Cost to Join?** None
CTMA	**Commercial Technologies for Maintenance Activities (CTMA)** (www.ncms.org/ctma) **Government Sponsor:** Office of the Deputy Assistant Secretary of Defense, Materiel Readiness **Consortium Management Firm:** National Center for Manufacturing Sciences (NCMS) (www.ncms.org) **Consortium Focus/Mission:** Initiatives focus on reliability, improved weapon systems capability with lowered overall sustainment costs, reduced cycle time for sustainment, improved sustainer safety, efficiency, and productivity, while improving business practices and data collection/management **Cost to Join?** $1,000 for academia, $5,000 for companies less than $50M in revenue, $10,000 for companies more
CONFERS FOSTERING THE SATELLITE SERVICING INDUSTRY	**Consortium for Execution of Rendezvous and Servicing Operations (CONFERS)** (www.satelliteconfers.org) **Government Sponsor:** Defense Advanced Research Projects Agency (DARPA) **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Develop industry-led standards and guide international policies for servicing that contribute to a sustainable, safe, and diverse space economy. **Cost to Join?** $500 for Observers (Government Observers do not pay dues), $1,000 for Contributing Members, $2,500 for Sustaining Members
	**Cornerstone Consortium** (www.cornerstone.army.mil) **Government Sponsor:** OSD Office of the Deputy Assistant Secretary of Defense for Industrial Policy via Manufacturing Resiliency and Assurance Office, and Industrial Base Analysis and Sustainment (IBAS) Program **Consortium Management Entity:** US Army Combat Capabilities Development Command – Chemical Biological Center (www.cbc.devcom.army.mil) **Consortium Focus/Mission:** Accelerate research, development, prototyping, demonstration, qualification, and integration of manufacturing capabilities and capacities into the U.S. Industrial Base and supply chains to strengthen the resiliency and assurance of a robust manufacturing innovation ecosystem to improve U.S. competitiveness **Cost to Join?** No fee

JOINT CONSORTIA	
CWMD Countering Weapons of Mass Destruction CONSORTIUM	**Countering Weapons of Mass Destruction (CWMD) Consortium** (www.cwmdconsortium.org) **Government Sponsor:** DoD Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Prototype new technologies related to Countering Weapons of Mass Destruction. **Cost to Join?** $250 annual membership fee
DEC DEFENSE ELECTRONICS CONSORTIUM	**Defense Electronics Consortium (DEC)** (www.deconsortium.org) **Government Sponsor:** DoD Industrial Base Analysis and Sustainment Program (IBAS), facilitated by Cornerstone Consortium **Consortium Management Firm:** U.S. Partnership for Assured Electronics (www.uspae.org) **Consortium Focus/Mission:** Strengthen the economic and force posture of the U.S. defense electronics industrial base and provide the DoD with deeper insights and connections to the U.S. electronics industry while providing industry with greater access to DoD opportunities. **Cost to Join?** $500 – $50,000, USPAE assesses membership fees based on a company's revenue
DoD Ordnance Technology Consortium DOTC / National Armaments Consortium NAC	**DoD Ordnance Technology Consortium (DOTC)** (www.nac-dotc.org) **Government Sponsor:** DoD in partnership with the National Armaments Consortium (NAC) (www.nacconsortium.org) **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Enhance our Warfighter's lethality, survivability and combat effectiveness by facilitating the industrial and academic research, development, and technology demonstrations needed to advance and expand our military technological superiority. **Cost to Join?** $500 annual membership fee
FDMC Forging Defense Manufacturing Consortium	**Forging Defense Manufacturing Consortium** (www.fdmc.ati.org) **Government Sponsor:** Defense Logistics Agency **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Identify, investigate, develop, and deploy technical and enterprise solutions to improve capability and competitiveness of the forging industry in support of US government forging supply chains. Facilitate timely and accurate information exchange and program coordination between the United States government agencies, non-government agencies, industry customers and suppliers. **Cost to Join?** None

JOINT CONSORTIA	
	Medical CBRN Defense Consortium (MCDC) (www.medcbrn.org) **Government Sponsor:** DoD Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Advanced development efforts to support the DoD's medical pharmaceutical and diagnostic requirements as related to enhancing the mission effectiveness of military personnel. **Cost to Join?** $250 annual membership fee
	National Advanced Mobility Consortium (NAMC) (www.namconsortium.org) **Government Sponsor:** Defense Mobility Enterprise (DME) **Consortium Management Entity:** Acquisition Management Office (AMO) at the Detroit Arsenal and member-led Consortium. **Consortium Focus/Mission: A**dvance the development of manned and unmanned autonomy-enabled military solutions and their emerging technologies in support of the U.S. warfighter. **Cost to Join?** $500 annual dues
	National Spectrum Consortium (NSC) (www.nationalspectrumconsortium.org) **Government Sponsor:** Office of the Under Secretary of Defense for Research & Engineering (R&E) **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Foster collaboration between Government, Industry, and Academia to identify, develop, and demonstrate the enabling technologies necessary to broaden the military and commercial access to and use of the electromagnetic spectrum for 5G and beyond. **Cost to Join?** $500 annual dues
	University Consortium for Applied Hypersonics (UCAH) (www.hypersonics.tamu.edu) **Government Sponsor:** Under Secretary of Defense for Research and Engineering (R&E)/Joint Hypersonics Transition Office **Consortium Management Firm:** Texas A&M Engineering Experiment Station (TEES) (www.tees.tamu.edu) **Consortium Focus/Mission:** Collaborative network of universities working with government, industry, national laboratories, federally funded research centers, and existing university affiliated research centers to deliver the innovation and workforce needed to advance modern hypersonic flight systems in support of national defense. **Cost to Join?** No fee

JOINT CONSORTIA	
	**Vertical Lift Consortium (VLC)** (www.verticalliftconsortium.org) **Government Sponsor:** Under Secretary of Defense for Research and Engineering (R&E) **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Develop and transition innovative vertical lift technologies to rapidly and affordably meet warfighter needs. **Cost to Join?** $500 annual fee

AIR FORCE CONSORTIA	
	**Air Force Life Cycle Management Center (AFLCMC) Consortium Initiative (ACI)** (www.sossecinc.com/sossec-consortium) **Government Sponsor:** Air Force Lifecycle Management Center (AFLCMC) **Consortium Management Firm:** System of Systems Consortium (SOSSEC) (www.sossecinc.com) **Consortium Focus/Mission:** Research, development, test, and evaluation within prototyping projects of the AFLCMC mission sets. **Cost to Join?** $500 annual membership fee (single membership fee for all SOSSEC OTAs)
	**Air Force Life Cycle Management Center (AFLCMC) Propulsion Directorate Consortium Initiative (PCI)** (www.sossecinc.com/sossec-consortium) **Government Sponsor:** Air Force Lifecycle Management Center (AFLCMC) Propulsion Acquisition Directorate **Consortium Management Firm:** System of Systems Consortium (SOSSEC) (www.sossecinc.com) **Consortium Focus/Mission:** Critical research, development, test, and evaluation within prototyping projects addressing propulsion needs and the future of the propulsion enterprise **Cost to Join?** $500 annual membership fee (single membership fee for all SOSSEC OTAs)
	**Air Force Research Laboratory (AFRL) Open System Acquisition Initiative (OSAI)** (www.sossecinc.com/sossec-consortium) **Government Sponsor:** Air Force Research Laboratory (AFRL) **Consortium Management Firm:** System of Systems Consortium (SOSSEC) (www.sossecinc.com) **Consortium Focus/Mission:** Prototypes in command, control, communications, and cyber, intelligence, surveillance, and reconnaissance (C4ISR) information sharing information systems. **Cost to Join?** $500 annual membership fee (single membership fee for all SOSSEC OTAs)

AIR FORCE CONSORTIA	
AFRL THE AIR FORCE RESEARCH LABORATORY LEAD | DISCOVER | DEVELOP | DELIVER	**Air Force Research Laboratory (AFRL) Open Technology and Agility for Innovation (OTAFI)** (www.sossecinc.com-consortium) **Government Sponsor:** Air Force Research Laboratory (AFRL) **Consortium Management Firm:** System of Systems Consortium (SOSSEC) (www.sossecinc.com) **Consortium Focus/Mission:** A coordinated prototyping and testing program in conjunction with the Government that speeds the ability to rapidly prototype Government, industry, and academia capabilities in the areas of command, control, communications, computing, intelligence, surveillance, and reconnaissance (C4ISR) technologies proposed to be acquired or developed by the DoD to sustain U.S. military technological advantage. **Cost to Join?** $500 annual membership fee (single membership fee for all SOSSEC OTAs)
SPACE ENTERPRISE CONSORTIUM	**Space Enterprise Consortium (SpEC)** (www.space-enterprise.org) **Government Sponsor:** Air Force Space and Missile Systems Center (SMC) **Consortium Management Firm:** National Security Technology Accelerator (NSTXL) (www.nstxl.org) **Consortium Focus/Mission:** Bridge the cultural gap between military buyers and commercial space startups and small businesses through OTAs to: minimize barriers to entry for small businesses and non-traditional vendors; promote integrated research and prototyping efficiencies; leverage partnerships to increase flexibility and agility, reduce cost, improve technology and decrease program development cycles for more frequent launches and innovative spacecraft designs to create more predictable access to space. **Cost to Join?** $250 – $10,000 annual dues structured by entity (corporate, non-profit, academia/other) and annual revenue or academic/other organization type (single membership fee for all NSTXL OT Consortia)
448TH SUPPLY CHAIN MANAGEMENT WING	**Error! Hyperlink reference not valid.** (www.sossecinc.com-consortium) **Government Sponsor:** Air Force Lifecycle Management Center (AFLCMC) **Consortium Management Firm:** System of Systems Consortium (SOSSEC) (www.sossecinc.com) **Consortium Focus/Mission:** Perform critical research, development, test and evaluation within prototyping projects addressing 448th Supply Chain Mission Wing, to include other organization in the Air Force Material Command or strategic partners, needs and the future of these enterprises to enhance the efficiency and effectiveness of the military aviation acquisition process. **Cost to Join?** $500 annual membership fee (single membership fee for all SOSSEC OTAs)

ARMY CONSORTIA	
	**Advanced Manufacturing, Materials, and Processes (AMMP)** (www.ncms.org/ammp) **Government Sponsor:** Army Research Lab **Consortium Management Firm:** National Center for Manufacturing Sciences (NCMS) (www.ncms.org) **Consortium Focus/Mission:** Advance and enable additive manufacturing to create next generation manufacturing breakthroughs. **Cost to Join?** $1,000 for academia, $5,000 for companies less than $50M in revenue, $10,000 for companies more than $51M in revenue.
	**Aviation & Missile Technology Consortium (AMTC)** (https://www.amtcenterprise.org/) **Government Sponsor:** Army Combat Capabilities Development Command (DEVCOM) Aviation & Missile Center **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Engage industry and academia to develop and mature guided missile technologies to develop and transition U.S. Army aviation and missile manufacturing technologies, and integrate advanced technologies, techniques and processes into future effective weapon systems in support of U.S. Army and DoD weapon systems. **Cost to Join?** To access the AMTC, join the National Armaments Consortium (NAC) | $500 annual membership fee and/or the Vertical Lift Consortium (VLC) | $500 annual membership fee.
	**Consortium for Command, Control, and Communications in Cyberspace (C5)** (www.cmgcorp.org/c5/) **Government Sponsor:** Army Combat Capabilities Development Command (DEVCOM) **Consortium Management Firm:** Consortium Management Group (CMG) (www.cmgcorp.org) **Consortium Focus/Mission:** Accelerate the development and deployment of new capabilities to the Warfighter focused on C4ISR and cyber technology sectors **Cost to Join?** $500 annual membership dues (waived first year for all new members; academic institutions are exempt)
	**Consortium for Energy, Environment, and Demilitarization (CEED)** (https://cmgcorp.org/ceed/) **Government Sponsor:** Army Combat Capabilities Development Command (DEVCOM) **Consortium Management Firm:** Consortium Management Group (CMG) (www.cmgcorp.org) **Consortium Focus/Mission:** Accelerate the development and deployment of new capabilities to the Warfighter. **Cost to Join?** $500 annual membership dues (waived first year for all new members; academic institutions are exempt)

ARMY CONSORTIA	
	Cyberspace Operations Broad Responsive Agreement (COBRA) (https://sossecinc.com/sossec-consortium/#COBRA) **Government Sponsor:** Program Executive Office Enterprise Information Systems (PEO EIS) **Consortium Management Firm:** System of Systems Consortium (SOSSEC) (www.sossecinc.com) **Consortium Focus/Mission:** Enhance the efficiency and effectiveness of the PEO EIS mission, the cyber community, and the Department of Defense through critical research, experiments, development, testing, modeling, architecture, and evaluation of innovative technology to support prototype efforts. **Cost to Join?** $500 annual membership fee (single membership fee for all SOSSEC OTAs)
	Defense Automotive Technologies Consortium (DATC) (www.datc.saeitc.org) **Government Sponsor:** Army Combat Capabilities Development Command (DEVCOM) Ground Vehicles Systems Center **Consortium Management Firm:** SAE Industry Technologies Consortia (www.sae-itc.com) **Consortium Focus/Mission:** Provide opportunities for members from private industry, not-for-profit, and academia to develop and transition advanced automotive technologies to all branches of military and government agencies. **Cost to Join?** $500 annual dues
	Engineer Research and Development Center (ERDC) (www.sossecinc.com-consortium) **Government Sponsor:** US Army Engineer Research and Development Center (ERDC) **Consortium Management Firm:** System of Systems Consortium (SOSSEC) (www.sossecinc.com) **Consortium Focus/Mission:** Mature and integrate technologies directly relevant to enhancing the mission effectiveness of military personnel and the supporting platforms, systems, components, or materials proposed to be acquired or developed by the DoD, or to improvement of platforms, systems, components, or materials in use by the armed forces. **Cost to Join?** $500 annual membership fee (single membership fee for all SOSSEC OTAs)
	Medical Technologies Enterprise Consortium (MTEC) (www.mtec-sc.org) **Government Sponsor:** U.S. Army Medical Research and Development Command (USAMRDC) **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Accelerate the development of medical solutions that prevent and treat injuries and restore America's military and veterans to full health. **Cost to Join?** Large Businesses | $5,000 annual dues; Small Businesses, Academic Research Institutions, Not-for-Profits | $1,000 annual dues; Multi-member Organizations | $500 annual dues

ARMY CONSORTIA	
SCEC Sensors, Communications, and Electronics Consortium	**Sensors, Communications, and Electronics Consortium(SCEC)** (www.sossecinc.com/scec-consortium) **Government Sponsor:** Army Combat Capabilities Development Command (DEVCOM) C5ISR Center **Consortium Management Firm:** System of Systems Consortium (SOSSEC) (www.sossecinc.com) **Consortium Focus/Mission:** Conduct research, development, and testing in cooperation with the Government, leading to technology demonstrations and prototype projects in the sensors, communications, and electronics sciences and other related fields to maintain and improve warfighter command, control, communications, computer, intelligence, surveillance, and reconnaissance capabilities in complex environments. **Cost to Join?** $500 annual membership fee
TREX TRAINING AND READINESS ACCELERATOR NSTXL	**Training and Readiness Accelerator (TReX) Consortium** (www.trainingaccelerator.org) **Government Sponsor:** Army Program Executive Office for Simulation, Training, and Instrumentation (PEO STRI) **Consortium Management Firm:** National Security Technology Accelerator (NSTXL) (www.nstxl.org) **Consortium Focus/Mission:** Expedites development, demonstration, and delivery of prototypes to increase Warfighter readiness. Focus on modeling, simulation, and training to iterate and refine critical technologies to keep pace with ongoing and emerging challenges. **Cost to Join?** $250 – $10,000 annual dues structured by entity (corporate, non-profit, academia/other) and annual revenue or academic/other organization type (single membership fee for all NSTXL OT Consortia)

NAVY CONSORTIA	
IWRP INFORMATION WARFARE RESEARCH PROJECT	**Information Warfare Research Project (IWRP)** (www.theiwrp.org) **Government Sponsor:** Naval Information Warfare Systems Command (NAVWAR) **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Engage industry and academia to develop and mature technologies in the field of Information Warfare that enhance Navy and Marine Corps mission effectiveness. **Cost to Join?** Large Businesses | $1,500 annual membership fee; Small Businesses | $500 annual membership fee
MSTIC Maritime Sustainment Technology and Innovation Consortium	**Maritime Sustainment Technology and Innovation Consortium** (www.mstic.org) **Government Sponsor:** Naval Surface Warfare Center, Philadelphia Division (NSWCPD) **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission: I**nnovative sustainment solutions to effectively address current and future security threats in maritime environments. Members will have access to opportunities focused on developing and maturing technologies in the field of Maritime Sustainment that enhance the Navy's mission effectiveness. **Cost to Join?** No annual dues

NAVY CONSORTIA	
NASC NAVAL AVIATION SYSTEMS CONSORTIUM	**Naval Aviation Systems Consortium (NASC)** (www.nascsolutions.org) **Government Sponsor:** Naval Air Systems Command (NAVAIR) **Consortium Management Firm:** Consortium Management Group (CMG) (www.cmgcorp.org) **Consortium Focus/Mission:** Support the technology needs of the Naval Air Warfare Centers (NAWCs) and the Naval Air Systems Command (NAVAIR). **Cost to Join?** $500 annual membership dues (waived first year for all new members; academic institutions are exempt)
NEST NAVAL ENERGETIC SYSTEMS AND TECHNOLOGIES	**Naval Energetic Systems and Technologies (NEST)** (www.nswcihdnest.org) **Government Sponsor:** Naval Surface Warfare Center (NSWC) Indian Head Division (IHD) **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Address the most significant energetics and explosive ordnance disposal challenges facing the Navy, Marine Corps, Department of Defense, and the Nation. **Cost to Join?** $500 annual membership
NSRP NATIONAL SHIPBUILDING RESEARCH PROGRAM™ Taking Shipbuilding and Repair to the Next Level	**National Shipbuilding Research Program (NSRP)** (www.nsrp.org) **Government Sponsor:** Naval Sea Systems Command **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Employ a unique collaborative framework to research, develop, mature, and implement industry-relevant shipbuilding and sustainment technologies and processes, improving efficiency across the U.S. shipyard industrial base and meeting future demand. **Cost to Join?** No fee
NSTIC Naval Surface Technology & Innovation Consortium	**Naval Surface Technology and Innovation Consortium (NSTIC)** (www.nstic.org) **Government Sponsor:** Naval Surface Warfare Center (NSWC) Dalgren **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Develop and mature technologies in the field of surface technology innovation that enhance Navy mission effectiveness focused on research, development, testing, and integrating complex naval warfare systems across a broad range of technology areas and disciplines. **Cost to Join?** No fee

NAVY CONSORTIA	
	Strategic & Spectrum Missions Advanced Resilient Trusted Systems (S²MARTS) (www.s2marts.org) **Government Sponsor:** Naval Surface Warfare Center (NSWC) Crane **Consortium Management Firm:** National Security Technology Accelerator (NSTXL) (www.nstxl.org) **Consortium Focus/Mission:** Refine strategies, management planning activities, and implement integrated, complementary solutions that enable broader DoD access to commercial state-of-the-art EMS technologies, advanced microelectronics, radiation-hardened (RAD-HARD) and strategic missions hardware. **Cost to Join?** $250 – $10,000 annual dues structured by entity (corporate, non-profit, academia/other) and annual revenue or academic/other organization type (single membership fee for all NSTXL OT Consortia)
	Strategic & Spectrum Missions Advanced Resilient Trusted Systems (S²MARTS) Research (www.s2marts.org/s2marts_research) **Government Sponsor:** Naval Surface Warfare Center (NSWC) Crane **Consortium Management Firm:** National Security Technology Accelerator (NSTXL) (www.nstxl.org) **Consortium Focus/Mission:** Operating under the 10 U.S.C. 2371 authority, the S²MARTS Research consortium can carry out research projects that meet the needs and requirements of the government at any stage, allowing for a natural transition from research to prototype development. **Cost to Join?** Current NSTXL members – immediate access without additional fees or membership requirements; No fee for innovators who wish to only operate under the S²MARTS Research program
	Undersea Technology Innovation Consortium (UTIC) (www.underseatech.org) **Government Sponsor:** Naval Undersea Warfare Center (NUWC) **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Facilitate collaborative rapid development, testing, and commercialization of innovative undersea and maritime technology for commercial, academic, and nonprofit organizations contributing to the defense and security of our nation. **Cost to Join?** Large Businesses | $1,500 annual dues; All others | $500 annual dues

NON-DOD CONSORTIA	
AMERICA'S DATAHUB CONSORTIUM	America's DataHub Consortium (www.americasdatahub.org) **Government Sponsor:** National Center for Science and Engineering Statistics (NCSES) within the National Science Foundation **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Enduring national asset, where eligible people and secure data come together for collaborative research and decision-making that will benefit the American public. **Cost to Join?** Annual dues have been waived for the period of October 1, 2021 through September 30, 2022
HSTech Homeland Security Technology Consortium	**Homeland Security Technology Consortium (formerly Border Security Technology Consortium** (www.hstech.ati.org) **Government Sponsor:** Department of Homeland Security (DHS) **Consortium Management Firm:** Advanced Technology International (ATI) (www.ati.org) **Consortium Focus/Mission:** Execute R&D and prototyping/piloting initiatives using innovative contracting methodologies that leverage both governmental and consortia technological, financial, and human resources to meet homeland security requirements and close capability gaps. **Cost to Join?** Waived annual membership dues for calendar year 2022.
NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY UNITED STATES OF AMERICA	**National Geospatial-Intelligence Agency (NGA)** (https://sossecinc.com/sossec-consortium) **Government Sponsor:** National Geospatial-Intelligence Agency **Consortium Management Firm:** System of Systems Consortium (SOSSEC) (www.sossecinc.com) **Consortium Focus/Mission:** Execute and coordinate efforts to plan, research, develop, and utilize prototype efforts designed to allow NGA to acquire and/or use those technologies and business processes in the agency for evaluation and demonstration. **Cost to Join?** $500 annual membership fee (single membership fee for all SOSSEC OTAs)
CYMANII the cybersecurity manufacturing innovation institute	**The Cybersecurity Manufacturing Innovation Institute (CyManII)** (www.cymanii.org) **Government Sponsor:** Department of Energy **Consortium Management Firm:** National Center for Manufacturing Sciences (NCMS) (www.ncms.org) **Consortium Focus/Mission:** Aggregates the most advanced institutions in smart and advanced manufacturing, securing automation and supply chains, workforce development, and cybersecurity **Cost to Join?** $1,000 for academia, $5,000 for companies less than $50M in revenue, $10,000 for companies more than $51M in revenue.