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The Future of Defense Innovation: Removing the Silos between the Warfighters and Innovators

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On March 28-29, 2018, the Synapse Innovation Summit in Tampa, Florida brought together industry, technology innovators, entrepreneurs and local members of the defense community with the shared goal of transforming the region into a vibrant technological ecosystem like Silicon Valley. In the first session, a series of prominent speakers took the floor on an impressive stage situated in the center of the Amalie Arena and supported by a sophisticated audiovisual technology system—Jeff Vinik, owner of the Tampa Bay Lightning national hockey team, Dr. Bernard Meyerson, Chief Innovation Officer at IBM, and Arnie Bellini, CEO of ConnectWise. The young audience contained fewer of the black suits typically worn by federal employees and more casual attire donned by innovators and start-up entrepreneurs.

From the outset, the event did not have the atmosphere of a typical conference for the

Department of Defense (DoD) even if it did feature speakers from U.S. Special Forces Command (SOCOM) and SOFWERX.

To close out the session, COL Josh Potter from the Transnational Threats Division at SOCOM spoke about the darker side of cryptocurrency and DoD's urgent need for innovative solutions to meet emerging threats. His presentation transitioned into an introduction for Tambrien Bates, the Director of SOFWERX, a catchier name for Special Forces Operations Works. The SOFWERX Director made a pitch to all innovators in the audience to help SOCOM solve the toughest challenges of the warfighter.

Outside the arena, the hallways were filled with technology exhibits and information booths featuring technology services and solutions across a variety of sectors including artificial intelligence, financial technology



(blockchain), healthcare, urban technology, and defense and cybersecurity.

In the exhibition hall, DoD was represented by SOFWERX, Special Operations Forces Acquisitions, Technology & Logistics (SOF AT&L), and SOCOM's small business office. The defense organizations actively conducted outreach with the local technology community in an attempt to leverage cutting-edge technology from the private sector. The presence of SOFWERX at Synapse is part of a broader strategy to close the gap between warfighters and innovators.

The Challenges of Defense Innovation

For several decades, the DoD has trailed behind the private sector in the development of cutting-edge technology, even those with national security applications. The postwar decades of DoD serving as the primary driver of technological advancement and largest funder of early R&D activities came to an end in the early 1980s.

Since that time, the private sector has been leading the way in technology research and development (R&D), in recent years leaving DoD's dwindling influence on technological innovation in the dust. Today, the contrast between the role of DoD and the private

Rapid Acquisition Offices

The emergence of SOFWERX builds upon a longer-term trend in rapid acquisition offices over the past 15 years to address concerns about the impact of the complex DoD acquisitions process on the technological superiority of the U.S. military and allow for rapid acquisition:

- **Rapid Equipping Force (REF)** – established by the U.S. Army in 2002 to help acquire commercial-off-the-shelf (COTS) and military-off-the-shelf technologies (MOTS).
- **U.S. Air Force Rapid Capabilities Office** – established in 2003 to assist with rapid prototyping and COTS acquisition.
- **Strategic Capabilities Office** – established in 2012 within OSD-Acquisitions, Technology & Logistics (AT&L) to adapt existing military systems for new missions.
- **Defense Innovation Unit Experimental (DIUx)** – established within OSD in 2015 to assist with outreach to technology innovators and startups in Silicon Valley and Boston.
- **SOFWERX** – established under SOCOM in collaboration with DefenseWerx in 2015 to assist with defining requirements, rapid prototyping, and engaging in outreach and collaboration with technology innovators and start-ups.
- **U.S. Army Rapid Capabilities Office** – established in 2016 to assist with rapid prototyping.
- **AFWERX** – established under U.S. Air Force in collaboration with DefenseWerx in 2018.

Source:

Ben FitzGerald, Alexandra Sander, and Jacqueline Parziale, [Future Foundry: A Strategic Approach to Military-Technical Advantage](#), Washington D.C.: CNAS, December 2016.

sector as the engine of new technology could not be more stark.

Between 1987 and 2013, DoD experienced 10% growth in R&D funding compared to 200% growth in private sector R&D funding.¹ However, this shift in leadership to private sector is not the only challenge facing DoD on technology and innovation.

Despite commanding an annual budget exceeding half a trillion dollars, the DoD represents an increasingly unattractive customer for innovative companies and

technology start-ups.² In fact, the number of companies competing for defense contracts is decreasing rapidly.³

A recent GAO study published in July 2017 found that DoD is failing to attract innovative companies due to several features of the DoD acquisition environment—the sheer complexity of its acquisition rules, an unstable budget environment (i.e., continuing resolutions or discontinued funding), lengthy contracting time, burdensome terms and conditions, and the need to obtain security clearances, which can take up to five years. The upfront investment in terms of time and money required to compete for a contract tends to favor huge defense contractors who can afford to take the financial risk when there is no guarantee of winning the contract.

Lead time for a procurement contract depends on the dollar amount. Even smaller contracts can require several months to a year. For contracts less than \$25K, it can take up to 55 days. For contracts between \$1 million and \$50 million, 180-250 days. The GAO report stated that it takes the U.S. Air Force an average of 13 months from the request for proposal to the award decision.

The current state of play in the DoD's acquisition system makes it extremely difficult for DoD to award contracts to non-traditional vendors. These innovative companies would rather do business with other commercial customers who operate at a fast pace.

In recent years, there has been a transformation under way which promises to accelerate and improve the DoD acquisitions process. Until a few years ago, the DoD used two main acquisition pathways: one for major defense acquisitions programs (DODI 5000.2) and one for urgent/emerging operational needs (DODD 5000.71). In the 2016 National Defense Authorization Act (NDAA), Congress recognized the immediate need for an

DoD Acquisitions Process

Defense agencies typically acquire technologies and services to meet warfighter needs in three ways: 1) products that are commercially available (COTS); 2) commercially available products that are further developed to meet specific DoD needs (often from non-traditional vendors); or 3) products designed exclusively for military-use (most often from major defense contractors such as Boeing, Raytheon, Boeing).

However, the DoD acquisition system (DoD Instruction 5000.02) typically offers a one-size-fits-all approach designed to support procurement of major defense acquisition programs (aircraft carriers, submarines, aircraft and nuclear weapons) and therefore expected to produce incremental improvements over time. DoD increasingly has technology needs that cannot be efficiently acquired using this approach. Rapid acquisition offices have been established in an attempt to fill this gap.

DoD acquisitions begins with its requirements process carried out through the Joint Capabilities Integration Development System (JCIDS), which validates capability requirements. Before DoD agencies can procure new technologies, a capability requirement must first be approved, a process that can take many months if not years to complete. As a key obstacle to leveraging disruptive technologies, the requirements process “predetermines the solution it seeks” early in the process before it releases a request for proposals from industry.

Sources:

[DoD Instruction 5000.02](#), January 7, 2015.

U.S. Government Accountability Office, [Military Acquisitions: DoD is Taking Steps to Address Challenges Faced by Certain Companies](#), July 2017.

[Report of the Advisory Panel on Streamlining and Codifying Acquisition Regulations](#) (Section 809 Panel Report), January 2018.

alternate pathway referred to as “middle-tier acquisition.”⁴

This alternate pathway is initiated by operators defining a need through experimentation, wargaming, hackathons, challenge competitions, etc. These events could lead to the procurement of a limited number of units from a non-traditional vendor for the purposes

of testing, prototyping or development of concept of operations. The rapid prototyping phase could then allow for a decision to invest further or engage in limited production. The 2016 NDAA updated agreements not covered by the Federal Acquisitions Regulation (FAR) such as Other Transaction Authorities (OTAs).⁵

To bring about a comprehensive transformation in DoD acquisitions, the 2016 NDAA also established the Advisory Panel on Streamlining and Codifying Acquisition Regulations, known as the 809 Panel. Congress continued its reform of DoD acquisitions under the 2017 NDAA with the order to DoD breakup of the Office of Acquisitions, Technology and Logistics (AT&L) into two separate offices, each led by an Under Secretary.

In August 2017, DoD submitted its Section 901 Report to Congress, which recommended a reorganized structure dividing AT&L into the Office of Research and Engineering (R&E) and the Office of Acquisitions and Sustainment (A&S). The Under Secretary for R&E would focus on technology and innovation, setting the technology strategy for DoD, solving critical technical warfighting challenges, and delivering technology solutions faster. The Defense Advanced Research Projects Agency (DARPA), the Strategic Capabilities Office (SCO) and DIUx would be located under this office. Meanwhile, the Under Secretary for A&S would handle acquisition, logistics, readiness and sustainment. The main advantage of this new structure would be additional acquisition pathways and a DoD executive focused on maintaining U.S. technological superiority.

The transformation of DoD acquisitions remains underway. Congress has expanded DoD's ability to use OTAs, doubled funding authorized for prototype projects, and authorized follow-on production contracts without further competition under the 2018 NDAA. Moreover the Section 809 panel produced its first report in January 2018, calling for a shift from a cost-

centric model to an outcomes-based model, organizing acquisition pathways around four types of products, services and solutions: 1) COTS; 2) products and services requiring minor customization; 3) products and services requiring major customization; 4) products and services uniquely developed for DoD.⁶ These new pathways would allow DoD to tailor its procurement specific to its technology needs.

Despite recent reforms, much work still needs to be done to ensure U.S. military technological superiority. Whereas the enemy can adapt quickly to emerging technologies, exploiting them to gain the advantage on the battlefield, DoD remains unable to leverage the rapid advancement of emerging technologies because its acquisitions process cannot move at the pace of business.⁷ If the private sector is now the primary engine for technological innovation, it is imperative that DoD figure out quickly how to work with different private sector companies and close the gap between the warfighters and innovators. In particular, DoD should put more support behind agile rapid prototyping and acquisitions organizations and collaborative platforms such as SOFWERX, located near SOCOM's headquarters at MacDill Air Force Base in Tampa, Florida.

SOFWERX Closes the Gap between Warfighters and Innovators

Several years ago, James "Hondo" Guerts, former acquisition executive for SOCOM (now Assistant Secretary of the Navy for Research, Development, and Acquisition), first came up with the idea for SOFWERX as a way to leverage disruptive technologies for the warfighters on the battlefield. SOCOM has several advantages over the Services that make it a more agile defense agency, but it remains subject to the same acquisition regulations as other defense agencies and does not benefit from any special acquisition authorities. The top-down, linear model of the

DoD acquisitions process, designed as a complex system of checks and balances that produces incremental improvements over time, does not favor procurement of disruptive technologies.⁸

However, SOCOM does operate under its own requirements authority for SOF-specific requirements not interoperable with other Service equipment. The Special Operations Forces Integration Development System (SOFIDS) uses more aggressive timelines and reduces the amount of required documentation, making it a more efficient process. The SOFIDS requirements process skips over several stages of the JCIDS process, kicking off with a document that includes information required for the prototyping stage and fielding a capability (something that usually takes place after Milestone C, months, years, or decades into the JCIDS requirements process).⁹

Unlike the Services, SOCOM's chief acquisitions executive also wields greater influence over the process by reporting directly to the SOCOM Commander. This removes the large bureaucracy standing between acquisition officials and the warfighters in the Services. That also means that milestone decision authority (MDA), the primary decision-maker responsible for moving a project to the next stage, for many of the smaller budget programs rest with GS-level managers and mid-career officers as opposed to 2 or 3-star level decision-makers in the Services. Within SOCOM, acquisition officials are empowered to make decisions at lower levels depending on the dollar amount. With its relatively small budget, SOCOM often adopts the large platforms acquired by the services and modifies them to meet their own requirements.

Given its rapid deployments into harsh and isolated operating environments, SOCOM needs the ability to respond quickly to emerging SOF requirements and often pursues

flexible procurement strategies.¹⁰ For this reason, SOF AT&L has traditionally leveraged proven methods, commercial off-the-shelf technologies (COTS) or modified existing equipment and technologies to meet specific requirements more often than the Services. To procure the product, SOF AT&L defense contracting officials must follow the FAR and the Defense Federal Acquisition Regulation Supplement (DFARS).¹¹ SOF AT&L keeps warfighters involved from day one from the initial request to the development of a final solution.

Highly trained and technical-savvy, special operators are willing to take risks with maturing technologies (the 80% solution). Even so, SOCOM has predominantly purchased technologies with higher levels of readiness in the past.¹² Technologies at higher readiness (TRL 5 or higher) can require extensive testing and fielding and demonstration of effectiveness in a relevant environment, which involves a higher upfront investment. For this reason, SOCOM acquisitions typically favored existing technologies over disruptive technologies and traditional defense contractors over non-traditional vendors, innovative companies, and/or startups.

Despite its need for agility to address emerging threats on the battlefield, SOCOM remained significantly hindered by the DoD acquisitions process in acquiring innovative solutions for the warfighter. Guerts wanted to create a mechanism for SOCOM to better collaborate with non-traditional vendors, a trend within DoD driven by former Secretary of Defense Ashton Carter through his outreach with the tech industries in Silicon Valley and Boston and release of the Third Offset Strategy, which aims to help sustain America's military dominance by engaging with private technology firms and acquiring cutting-edge technologies.

Guerts and his team began searching for existing acquisition laws that might provide sufficient flexibility and found a nondescript paragraph in the U.S. Federal Technology Transfer Act of 1986 (15 U.S. Code § 3715), which allows defense agencies to form Partnership Intermediary Agreements (PIAs). These agreements allow DoD agencies to collaborate with the private sector outside the barriers of other acquisition rules, laws and authorities.¹³ Although the law existed on the books for decades, it was an underutilized tool and there were few precedents for creating an organization like SOFWERX, even within an agile command like SOCOM.¹⁴



With \$2 million in funding to start up its operations, SOFWERX was created in September 2015 to address this critical gap in SOCOM's ability to leverage cutting-edge technologies.¹⁵ SOFWERX was founded as a public-private organization, its headquarters originally housed in a red brick building, an old cigar factory located in downtown Tampa in the historic Ybor City neighborhood. Run by the Doolittle Institute, also known as DefenseWerx, SOFWERX was created under a Partnership Intermediary Agreement (PIA) and enjoys status as a 501(c)(3) non-profit organization.

At first glance, the often inscrutable U.S. special forces (SOF) and SOFWERX with its business model designed to leverage new

Defense Innovation Unit Experimental (DIUx)

The first DIUx office was opened in Silicon Valley in August 2015 to build relationships with industry, identify promising technologies, and facilitate business agreements between companies and DoD. At first, DIUx had no funding or authority to award contracts, but met with tech companies to learn about their products and help facilitate meetings between the companies and interested DOD organizations. This initial effort drew criticism as companies claimed that DIUx was unable to help them navigate the challenges of doing business with DoD.

In May 2016, the former Secretary of Defense Ashton Carter appointed new leadership for DIUx and allocated \$20 million in research, development, test and evaluation funding and delegated contract award authority to the organization. DIUx announces proposals using a system similar to a broad agency announcement and awards contracts for technology prototyping via the Army Contracting Command-New Jersey. Essentially, DIUx posts a technology area of interest inviting companies to submit short solution briefs. DIUx evaluates each brief within 30 days of receipt and selects companies to present and submit full proposals. DIUx negotiates with final selected companies and awards funding. Although DIUx aspires to turn around design requests to contract awards in 60 days, constraints imposed by continuing resolutions have extended this period to 121 days. Having received an enormous influx of proposals, DIUx has now established priorities including artificial intelligence and machine learning, autonomy, human systems, information technology, and space.

Source:

U.S. Government Accountability Office, [Military Acquisitions: DoD is Taking Steps to Address Challenges Faced by Certain Companies](#), Report to the Committee on Armed Services, U.S. Senate, July 2017.

ideas through open collaboration with non-traditional partners appear to have little in

common. Elite special forces operators conduct their high-risk and classified missions in small teams, operating in remote, harsh locations, covertly and far away from the public eye, and rarely receiving credit for their successes. Though highly secretive, special forces operators are willing to assume more risk in doing their jobs than other military forces.

Unlike the difficulty of gaining access to SOCOM's headquarters at MacDill Air Force Base through multiple layers of security and often requiring security clearances, visitors can freely enter the SOFWERX facility, sign in on a tablet with their names and email addresses, and talk to personnel. Inside the building, the 40,000+ square-foot space looks more like the hipster office space of a Silicon Valley startup than a defense organization.



Overseen by SOF AT&L, SOFWERX offers an agile platform for integrating cutting-edge technologies into battlefield operations to meet the requirements of the warfighter on the ground. SOCOM's Donovan Group, a dedicated future studies initiative under the direction of the SOCOM J5 Director, Strategy Plans and Policy, helps provide the context. It focuses on developing future-oriented ideas to inform enterprise development of strategy, capabilities, doctrine, concepts, training, and other government agencies and private industry as appropriate.¹⁶

SOFWERX serves as a neutral facilitator bringing together acquisition officials from SOF A&TL, warfighters, small businesses, innovators, academics, foreign nationals, and even members from the elusive hacker/maker movement to help define problems, determine the measures of success, and develop effective solutions. As a public-facing emissary for SOCOM, SOFWERX offers a platform for rapid prototyping, experimentation, and collaboration geared toward solving warfighter problems. It also uses fast and flexible business-to-business contracts to facilitate rapid prototyping and acquire technologies for further testing and evaluation. In this way, SOFWERX assists SOCOM and other defense agencies make effective acquisition decisions.

SOFWERX receives funding to support its projects from defense stakeholders with SOCOM partnerships who request the activity such as the Services or the Strategic Capabilities Office (SCO). For example, SOCOM and its partners within DoD can use SOFWERX to assist in defining requirements for a program of record, determine the envelope for a program of record, or inform a requirement during execution of a program of record to solve technical issues, make upgrades, or add new capabilities.

For example, recently, SOF AT&L's Program Executive Office for Maritime wanted to determine the art of the possible for new capabilities for undersea clandestine operations. SOFWERX held an event, bringing together members of industry, academia, and government to brainstorm the requirements for a submersible jet-ski. Technology innovators submitted concept papers, which were then down-selected for a subsequent rapid prototyping event.

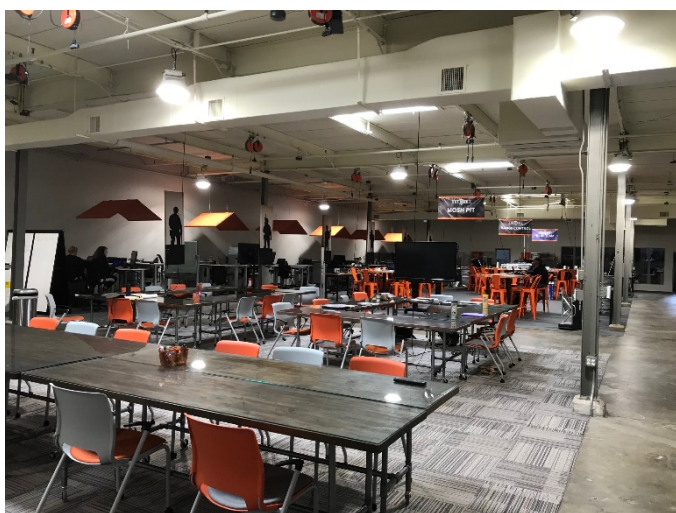
SOFWERX activities also inform acquisition decisions by SOF AT&L and other defense agencies, but any follow-on procurement

activity proceeds through SOCOM or Service contracting offices. After a rapid prototyping event, for example, SOF AT&L determines the most appropriate pathway to provide special operators with the complete kit they need to do the job. In some cases, SOF AT&L may decide to make procurements under the FAR, establish a program of record or develop a future requirement. In other cases, acquisition officials may use other flexible tools such as OTAs. For example, SOFWERX projects announced on their website for Prize Challenges or Rapid Prototyping Events are considered to meet “reasonable competition” requirements and may lead to further non-competitive OTAs.

Tambrien Bates, SOFWERX Director, highlights the primary missions as achieving a high return on collisions, opportunities for collaboration, rapid advancement of technology, innovative solutions for the warfighter, all of which arise from an ecosystem of more than 20,000+ experts. Compared to other rapid acquisition offices, the SOFWERX model is unique in its outreach, collaboration, and iterative process. To achieve its mission, SOFWERX has created a wide variety of events to connect the SOCOM warfighter to a growing ecosystem of technology experts including direct requests from warfighters, Hackathons, Prize Challenges, and Rapid Prototyping Events:



- *Hackathons* – These events bring together representatives from government agencies, DoD, industry, and academia together for an intensive, hands-on sprint to develop open source tech solutions for warfighter problems. These events are unique in that they bring government official together with the members of the hackers and maker community, who tend to be suspicious of the government.
- *Prize Challenges* – To build on past successful experiences with prize challenges, SOFWERX launched TeamWERX in November 2017, a prize challenge platform designed to find innovative solutions to warfighter problems. TeamWERX allows warfighters through SOFWERX to submit problems and innovators to propose solutions that meet certain specifications. For example, in 2016, SOFWERX launched a prize challenge asking for solutions to provide special operators with Internet connectivity in remote areas without the necessary infrastructure.¹⁷ SOFWERX listed the minimum requirements and accepted applications from innovators. The top three competitors received the opportunity to brief officials from SOF AT&L and the winners received a cash prize award.¹⁸
- *Prototyping Events* - The ThunderDrone project is a series of rapid prototyping events that focus on different aspects of





the technology and are designed to bring cutting-edge drone technology to special operators.¹⁹ The first event took place in November 2017 with SOFWERX bringing together over 200 participants to explore the art of the possible for drone technology for autonomy, navigation, target identification, and machine learning.²⁰ The second rapid prototyping event took place in January 2018 and focused on technologies for countering small unmanned aerial systems. Over 240 participants from more than 90 companies showcased their capabilities to detect, locate, identify, track, exploit, defeat or assess small unmanned aerial systems. The event kicked off a rapid prototype period in which collaborative teams advanced their concepts for an outdoor demonstration in April 2018 at Fort Bragg. Top participants will be invited to participate in the third event, "Game of Drones" to take place in June 2018 in Las Vegas, where they will compete for cash awards up to \$600K. The broader goal of ThunderDrone is to facilitate innovation based on commercial drone technology for SOCOM.²¹

- *Outreach and Engagement* – SOFWERX expands its community of experts through its Industry Fellows Program and participation in regional innovation events

such as the Synapse Innovation Summit. At the Synapse conference in Tampa SOFWERX engaged with the private sector, asking innovators to help solve the warfighter's toughest problems.

In addition to hosting over 1,700 events and building up a 20,000+ member ecosystem, SOFWERX can also boast about some impressive success stories in technological innovation.

As one of its early success, SOFWERX helped SOCOM with a longstanding request for a flexible 3D-printed drone. By connecting warfighters to innovators, SOFWERX brought to life an open-source 3D-printed drone that can fly or drive and easily be converted from a fixed-wing drone to a quadcopter to a small land robot. Since it's 3D-printed, the drone can be repaired or replaced in the field. Based on open source software and hardware, the drones are not subject to export controls. Special operators can share them with international partners.²²

SOFWERX has also become involved with SOCOM's ambitious TALOS project, an exoskeleton battle suit designed for better protection and enhanced capabilities.²³ TALOS is known fondly as the Iron Man suit or more formally as the Tactical Assault Light Operator Suit. SOF AT&L first formed an acquisition task force for TALOS in 2013, but faced significant challenges in finding the right non-traditional industry partners given the variety of complex innovation technologies required for the suit and organized a rapid prototyping event in 2014.²⁴ SOFWERX was established specifically to address this sort of gap, to bring diverse perspectives together for the rapid advancement of technology and serve as a neutral platform to facilitate collaboration across a variety of innovative companies.²⁵ In November 2016, SOFWERX organized a design review for the TALOS project to define the final prototype and follow-on discussions about

various aspects of the project.²⁶ SOCOM plans to test the prototype suit in the summer of 2018.

Conclusion

With the establishment of SOFWERX, AFWERX, and DIUx, and the reorganization of OSD's AT&L to create new acquisition pathways, it is clear that new models for public-private partnership are an important part of the transformation in DoD's acquisition process.²⁷ Given its unique mission and structure, SOFWERX will continue to play a vital role in removing longstanding silos, breaking down barriers that prevent DoD from operating quickly and flexibly, and bringing innovators together with the warfighter and solving their toughest challenges on the battlefield.

About the Author

Dr. Natasha E. Bajema joined the Center for the Study of Weapons of Mass Destruction at National Defense University in October 2008. Dr. Bajema currently is a Senior Research Fellow, the principal investigator for Emergence and Convergence, and Course Director for an elective entitled Through the Film-maker's Lens: Contemporary Issues in Combating Weapons of Mass Destruction and conducts research on global threat reduction programs. From 2010 to 2013, Dr. Bajema held a long-term detail assignment serving in various capacities in the Office of the Secretary of Defense, Acquisitions, Technology and Logistics, Nuclear, Chemical and Biological Defense Programs and in Defense Nuclear Nonproliferation at Department of Energy's National Nuclear Security Administration.

Emergence & Convergence Study

In its multi-year study entitled *Emergence and Convergence*, the WMD Center is exploring the risks, opportunities, and governance challenges for countering WMD introduced by a diverse range of emerging technologies. The WMD Center identified advanced robotics as one of several emerging technologies for deeper assessment. Toward this end, the WMD Center has developed an exploratory framework for first identifying the

SOFWERX versus DIUx

SOFWERX and DIUx leverage different acquisition authorities, which offer distinct acquisition pathways for generating innovative technologies and proving their relevance for DoD missions: Partnership Intermediary Agreements (PIA) and Other Transaction Agreements (OTAs).

Whereas OTAs are designed to fill today's known, critical mission gaps, PIAs explore the art of the possible for today's mission gaps and tomorrow's missions. OTAs produce innovative solutions to meet known requirements, and PIAs help an agency discover new requirements. The two pathways work best with different types of organizations. OTAs are effective for working with mature, medium to large-size companies. While PIAs work best for startups and fast-growing innovative companies, multi-partner collaborations, and integration of disparate technologies.

SOFWERX operates under a PIA with the Doolittle Institute, which is designed to foster a collaborative community of technology exchange/transfer among government, industry, and, academic partners. The emphasis is on joint collaboration and iteration to accelerate delivery of innovative capabilities to the warfighter. PIAs are especially useful when innovation requires multi-partner collaborations and exploration of innovative solutions.

DIUx uses OTAs to enter into agreements with industry for prototyping that are not subject to the FAR and are designed to fill critical mission gaps. Congress authorized the use of OTAs as flexible agreements that allow defense agencies to engage companies to conduct R&D and prototyping. OTAs are not procurement contracts. Rather, they allow for follow-on non-competitive production contracts if the rapid prototyping OTA was competitively announced.

Source:

Thanks to [Brad Chedister](#) for his helpful comments on this issue on LinkedIn.

emerging technologies that will have greatest impact on the WMD space for state and non-state actors and then for evaluating the nature of that impact on the current tools and approaches for countering WMD.

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Secretary of Defense (OSD) and receives its primary funding from the CWMD Systems Program Office within the Office of the Assistant Secretary of Defense for Nuclear, Chemical and Biological Defense Programs/Threat Reduction and Arms Control (NCB/TRAC/CWMD Systems). The support by Mr. Jim Stokes, Director, CWMD Systems Program, has been critical to the project's success.

¹ U.S. Government Accountability Office, *Military Acquisitions: DoD is Taking Steps to Address Challenges Faced by Certain Companies*, Report to the Committee on Armed Services, U.S. Senate, July 2017, Available at <https://www.gao.gov/assets/690/686012.pdf>

² Ryan Evans, "5 Questions with Sen. John McCain on Defense Acquisition and Drinking with Deng," *War on the Rocks*, July 8, 2015. Available at <https://warontherocks.com/2015/07/5-questions-with-sen-john-mccain-on-defense-acquisition-reform-and-drinking-with-deng/>

³ Report of the Advisory Panel on Streamlining and Codifying Acquisition Regulations (Section 809 Panel Report), January 2018, 7. Available at https://section809panel.org/wp-content/uploads/2018/01/Sec809Panel_Vol1-Report_Jan18_FINAL.pdf

⁴ Ibid, 27.

⁵ Tim Cooke, "Riding the Acquisition Innovation Avalanche," *Government Executive*, March 19, 2018. Available at <https://www.govexec.com/excellence/promising-practices/2018/03/riding-acquisition-innovation-avalanche/146745/>

⁶ Section 809 Panel Report, 11

⁷ See Ryan Evans, "5 Questions with Sen. John McCain on Defense Acquisition and Drinking with Deng."

⁸ Benjamin Tkach, *Special Operations Contracting: 21st Century Approaches for Service and Technology Acquisition*, JSOU Report 17-5, Joint Special Operations University, Tampa, FL: JSOU Press, 2017, 3. Available at http://jsou.libguides.com/ld.php?content_id=34163516

⁹ Jarrett Lane and Michelle Johnson, "Failures of Imagination: The Military's Biggest Acquisition Challenge," *War on the Rocks*, 3 April 2018. Available at <https://warontherocks.com/2018/04/failures-of-imagination-the-militarys-biggest-acquisition-challenge/>

¹⁰ See Tkach, 4.

¹¹ See GAO, *Military Acquisitions: DoD is Taking Steps to Address Challenges Faced by Certain Companies*.

¹² This was a major contrast to the Services which provide R&D funding to develop new concepts and nascent technologies. See Tkach, 20-21.

¹³ 15 U.S. Code § 3715, Available at <https://www.law.cornell.edu/uscode/text/15/3715>

¹⁴ Stew Magnuson, "SOFWERX: Newest Acquisition Tool for Special Operators," *National Defense*, May 1, 2016. Available at <http://www.nationaldefensemagazine.org/articles/2016/5/1/2016may-sofwerx-newest-acquisition-tool-for-special-operators>

¹⁵ SOCOM received \$2 million in plus-up funding (RDT&E) from Congress for FY16/17 to establish SOFWERX, but did not receive any further funds in FY18.

¹⁶ "Donovan Group," *SOFWERX*, 2016. Available at <https://www.sofwerx.org/wp-content/uploads/UnusualSuspects-2016-Donovan-Group-1.pdf>

¹⁷ Michael Hoffman, "Special Operations Command Posts Internet Connectivity Challenge," *Tandem NSI*, September 23, 2016. Available at <http://www.tandemnsi.com/2016/09/special-operations-command-posts-internet-connectivity-innovation-challenge/>

¹⁸ Ibid.

¹⁹ See Joseph Trevithick, "U.S. Military Wants Tech Companies To Battle Each Other in the 'ThunderDrone,'" *The Drive*, August 25, 2017. Available at <http://www.thedrive.com/the-war-zone/13825/u-s-military-wants-tech-companies-to-battle-each-other-in-the-thunderdrone>; See also Vivienne Machi, "SOCOM Learning on ThunderDrone Initiative to Acquire New Unmanned Systems Capabilities," *Defense Information Systems Analysis Center*, October 23, 2017. Available at <https://www.dsiac.org/resources/news/socom-learning-thunderdrone-initiative-acquire-new-unmanned-systems-capabilities>.

²⁰ See "ThunderDrone," *SOFWERX*. Available at <https://www.sofwerx.org/thunderdrone/>

²¹ John Harper, "Special Operations Command Creating New Drone Technology Initiative," *National Defense*

Magazine, May 16, 2017, Available at <https://www.dsiac.org/resources/news/special-operations-command-creating-new-drone-technology-initiative>

²² See Stew Magnuson, "SOFWERX: Newest Acquisition Tool for Special Operators."

²³ "Storyboarding Event," SOFWERX. Available at <https://www.sofwerx.org/talos-01-2017-c4i-storyboarding-eventresized/>

²⁴ U.S. SOCOM, "SOF AT&L Seeks Industry Partners for Future TALOS Innovations," May 2017. Available at <http://www.socom.mil/pages/SOF-AT-L-Seeks-Industry-Partners-for-Future-TALOS-Innovations.aspx>; see also Matthew Cox, "Industry: Iron Man Still Hollywood, Not Reality," *military.com*, Available <https://www.military.com/daily-news/2014/04/22/industry-iron-man-still-hollywood-not-reality.html>

²⁵ Vivienne Machi, "Q&A with SOCOM's New Acquisition Executive, James Smith," *National Defense*, February 8, 2018, Available at <http://www.nationaldefensemagazine.org/articles/2018/2/8/interview-with-socom-s-new-acquisition-executive-james-smith>

²⁶ "Design Integration Review," SOFWERX, November 2016. Available at <https://www.sofwerx.org/wp-content/uploads/TALOS-11.2016-Design-Integration-Review-1.pdf>

²⁷ AFWERX was established through a PIA between the U.S. Air Force and DefenseWerx. Heidi West, "AFWERX is Smart Risk for Innovative Solutions, U.S. Air Force News, January 12, 2018, Available at <http://www.af.mil/News/Article-Display/Article/1414478/afwerx-is-smart-risk-for-innovative-solutions/>