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Creating Synergy for Informed Change

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ACQUISITION RESEARCH PROGRAM:
CREATING SYNERGY FOR INFORMED CHANGE

Harnessing Rapid Innovation Culture to Invigorate the Adaptive Acquisition Framework

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Abstract

The defense acquisition system is undergoing significant change with the rollout of the Adaptive Acquisition Framework, better integration with the commercial sector, greater use of prototyping, and expansion of modern software development to provide incremental capability. The timing of this change is critical as our near-peer competitors are challenging us on multiple fronts. These encouraging reforms must be built upon. Rapid innovation acquisition organizations can provide lessons in continuing this positive momentum. Acquisition leaders must encourage their people to use all flexibilities and resist the urge to impose restrictions. They must energize the workforce. They must empower them to exploit all available technology advances. They must enable the necessary insight and help their teams build collaboration networks. They must hire the right people entering the workforce and maintain accountability of those in the system. They must encourage the use of all available acquisition tools. Acquisition leaders should evolve and adapt these methods for their organizations to ensure they are ready to meet the current challenges.

Introduction

The United States is in a tenuous historical period with the emergence of authoritarian superpower rivals challenging its military superiority, economic dominance, and global influence. It is imperative the United States and its allies maintain a strong military deterrent to dissuade aggressive actions by these increasingly powerful regimes. This relies on their collective ability to marshal defense-unique and commercial innovations into warfighting capabilities suited to meet today's evolving threats. Thanks to thoughtful congressional leaders like the late Senator John McCain and Representative Mac Thornberry who provided the DoD with new authorities in acquisition and contracting, and visionary acquisition leaders like Ellen Lord, Kevin Fahey, Will Roper, Hondo Geurts and General John Murray, the defense acquisition system is now less bureaucratic and cumbersome. The stand-up of new organizations like AFWERX, NavalX, and Army Applications Lab has helped the DoD expand its innovation network. Events like Pitch Days, combined with use of streamlined contracting vehicles, have energized participation by non-traditional defense vendors that are actively working to solve some of the military's toughest problems. Modern software development is now recognized as a powerful tool and acquisition offices are organizing around it to fully exploit its potential. Rapid prototyping is being used more frequently to field capability and to validate assumptions before initiating a major program. These are positive changes and it is an exciting time to be in the defense acquisition business.

Many of the lessons learned that initiated these changes came from rapid innovation acquisition organizations (RIAOs) like Defense Advanced Research Projects Agency (DARPA), Strategic Capabilities Office (SCO) and Defense Innovation Unit (DIU) as well as commercial exemplars such as Google. It is worth reexamining what new lessons corporate innovators and RIAOs can share to continue the momentum and positively shape acquisition culture. It should not be assumed that forward progress is inevitable. Reversals are still possible. Leaders must take forceful steps to propel their workforce into the new era. They also must resist taking any actions that limit acquisition flexibility. In conducting an extensive literature review, interviews, and senior leader commentaries, five key themes emerged and 19 detailed recommendations were crafted to provide acquisition leaders techniques on how to build and sustain momentum for these positive developments and help the US maintain its military technological edge.

The Environment

Entering 2020, national security officials are again stressing the challenges the United States faces in meeting the military threat posed by China and Russia. Both sit perched next to old allies and have the strength and reach to wreak havoc in the European and Pacific regions. Both are willing to assert themselves aggressively in achieving desired ends. China continues its South China Sea military build-up, threatens freedom of navigation and heightened its rhetoric regarding Taiwan with the Chinese Defense Minister stating "that it will fight anyone who tries to interfere in its reunification with Taiwan."[1] Russia has acted similarly with its Crimea takeover, covert actions in eastern Ukraine, military involvement in Syria, cyber-attacks against the Baltic states and multiple destabilization campaigns in the region. This assertiveness is driven in no small part by the perception that the United States is in a much weaker military position than it has been in years past.

The Global Firepower Power Index annually scores militaries using 55 different factors including weapon numbers and diversity. This index offers a way to measure progress that our global power competitors have achieved. With a perfect score being zero, the margins between the United States, Russia, and China are slender and have been narrowing for years (See Figure 1).

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[1] The World News, 2019

Figure 1: Global Firepower Index Comparison [2]

China and Russia have also been increasing their military investments. China's military spending grew to "$250 billion in 2018 … the 24th consecutive year of increase."[3] In 2019, Russia's GDP share for "procurement of modernized equipment and research and development [was] significantly higher than for any other major power."[4] China and Russia are collaborating more, signing a memorandum on "Launching Cooperation in the Domain of Innovation," which created a "joint incubator aimed at young tech entrepreneurs and business communities."[5]

This is the environment in which the United States now finds itself, and as Defense Secretary Mark Esper stated, we "cannot stand idly by while authoritarian nations attempt to reshape the global security environment to their favor at the expense of others [since] doing so would invite continued aggression and diminish our ability to deter future conflicts.[6]

The Defense Reform Mandate

To succeed in the great power competition, the DoD has issued a reform mandate for the defense community in the 2018 National Defense Strategy (NDS). The Defense Acquisition System (DAS) is directly implicated in four key areas of the NDS as summarized below:

Deliver Performance at the Speed of Relevance. Our response will be to prioritize speed of delivery, continuous adaptation, and frequent modular upgrades. We must not accept cumbersome approval chains, wasteful applications of resources in uncompetitive space, or overly risk-averse thinking that impedes change. Delivering performance means we will shed outdated management practices while integrating business innovation insights.

Organize for Innovation. If current structures hinder substantial increases in lethality or performance, Service and Agency leaders are expected to consolidate, eliminate, or restructure as needed. DoD leadership is committed to changes in authorities, granting of waivers, and securing support for streamlining processes and organizations.

Streamline Rapid Iterative Approaches from Development to Fielding. The Department will realign the incentive and reporting structure to increase speed of delivery, enable design tradeoffs in the requirements process, expand the role of warfighters and intelligence analysts throughout the acquisitions process, and utilize non-traditional suppliers. Prototyping and experimentation should be used prior to defining requirements.

Harness and Protect the National Security Innovation Base. The Department's technological advantage depends on a healthy and secure national security innovation

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[2] Global Firepower Index, 2020
[3] Stockholm International Peace Research Institute, 2019
[4] Radu, 2019
[5] Bendett & Kania, 2019
[6] Cronk, 2019

base that includes both traditional and non-traditional defense partners. We will continue to streamline processes so that new entrants and small-scale vendors can provide cutting-edge technologies.[7]

The common NDS theme is that the defense acquisition system must deliver capabilities that better leverage the commercial sector to deliver highly innovative solutions at a faster pace. It must "deliver performance at the speed of relevance."[8] Dr. Michael Griffin, the undersecretary of defense for research and engineering, reiterated the importance of timeliness in testimony to Congress noting that our ability to "translate technology into fielded capability is where we can achieve and maintain our technological edge."[9]

Innovation Sources

The Ronald Reagan Institute defines the NDS-coined National Security Innovation Base (NSIB) as the "ecosystem of capital, research, knowledge, capabilities, policies, incentives, and people that turns ideas into innovations," which includes national security organizations, National Laboratories, Federally Funded Research and Development Centers (FFRDCs), University-Affiliated Research Centers (UARCs), academia, traditional defense primes, commercial sector, venture capital, and allies and partners.[10] This definition clearly articulates that there are many sources of innovation to explore and garner the right solution to meet a capability gap.

The defense research enterprise is annually allocated billions of dollars that help maintain 81 laboratories employing more than 15,000 employees in multiple technology fields. Congress also funds 32 national security FFRDCs and multiple UARCs who consistently push the boundaries of innovation through applied research and advanced technology development efforts.[11]

There is also what might be termed the prime research enterprise consisting of the top 25 corporations in the defense sector that now encompass 74% of total defense revenues.[12] Price Waterhouse Coopers found that they are "conserving capital and returning cash to shareholders rather than pursuing aggressive innovation," which resulted in them spending just ~2.2% of their revenues on R&D compared to most technology companies which spend ~7.6%.[13] Even with this reduction, defense primes are important innovation players but cannot be relied upon as before.

While government labs, academia, and defense primes remain key elements of the NSIB, the commercial sector is now dominating the innovation space. As of 2017, "large multi-national corporations such as Microsoft, Apple, and Google, invested more than 5 times the total [R&D] spent by the largest aerospace and defense companies" and collectively the federal government was outspent by a 3 to 1 margin by the commercial sector (see Figure 2).[14] Many technologies being pursued are dual-use and include "satellite imaging, robotics and autonomous mobility, encryption, AI-enabled sensor fusion, mobile computing, flexible electronics, nanotechnology and lightweight protective materials" all of which have important

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[7] DoD, 2018

[8] DoD, 2018

[9] Garamone, 2018

[10] Ronald Reagan Institute, 2019, p. 11

[11] National Science Foundation, 2020

[12] Mehta, 2017

[13] Starr et al., 2016

[14] Amas, 2015

application in meeting NDS objectives.[15] Given their investments, fresh thinking, access to capital, and strong incentives, the corporate commercial sector is an attractive DoD target to capture innovation. Within this space there are also non-traditional defense partners (NTDPs) as coined by the NDS. These are start-up firms with highly innovative ideas but often low cashflow and immature solutions. They often operate using venture capital to scale up promising solutions. Their focus is primarily on the commercial market but given their need for a customer base to generate cashflow, the DoD can influence their final product offerings to satisfy critical military needs. This is now an important and growing innovation resource for the DoD.
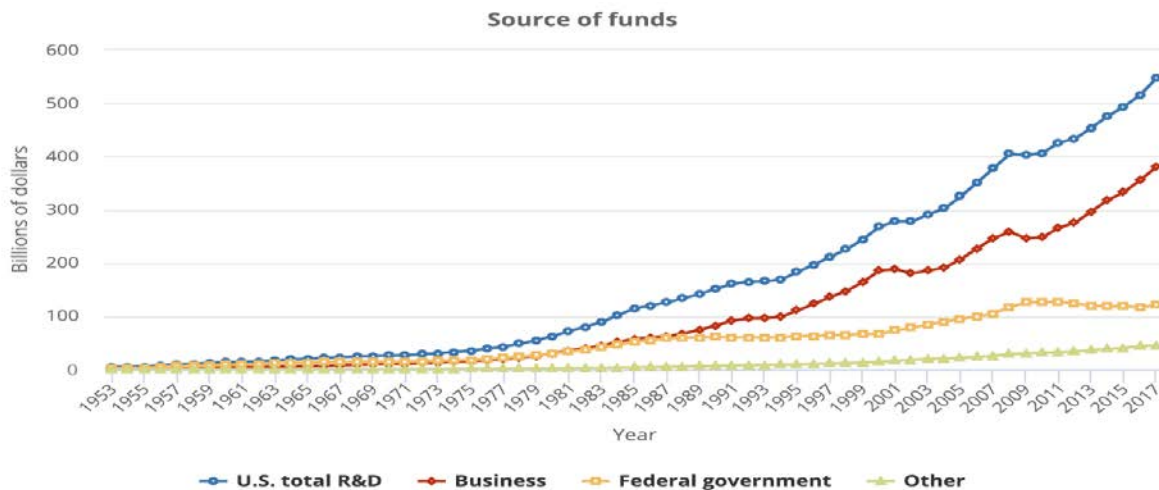

Figure 2: Business Versus Government R&D Spending [16]

Methods

With this infusion of innovation sources to pursue, the acquisition community now needs appropriate methods to implement them. Unfortunately, the defense acquisition system has long been seen as flawed and failing to meet warfighter needs. In 2016, Air Force senior leaders said they viewed their service "as no longer able to deliver the level of experimentation, innovation, and technological leadership required by its mission."[17] Defense Secretary Esper, while Army secretary, told Congress that "reform of our Industrial Age acquisition system [was] a strategic imperative."[18] Fortunately, there is a fairly radical acquisition transformation underway.

The transformation of our industrial age defense acquisition system is now being driven by four major trends that allow the DoD to achieve the NDS speed and innovation mandates:

- The first trend is the creation of tools and techniques to attract NTDPs to the defense market such as expanded use of Other Transactions. For the foreseeable future, the DoD will have large contracts for capital ships, fighters/bombers, missiles, and tanks that are defense products, but the research focus has shifted away from defense-only to dual-use technologies, which the commercial sector is positioned to provide.

- The second trend is software's ascendancy in delivering capability. Manufacturing will always have its challenges, but advances have made production easier for many

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[15] Carrillo, 2017
[16] National Science Board, 2020
[17] National Academies of Sciences, Engineering, and Medicine, 2016
[18] Senate Armed Services, 2017

products. The ability to quickly develop, test, and deploy high-quality software is now a major enabler for providing incremental capability improvements.

- The third trend is the increased use of prototyping for the operational and acquisition communities to assess technology viability, inform requirements development, and deliver incremental capability before committing to full scale deployment.

- The fourth trend is the shift away from large, exotic, high dollar weapon systems and towards distributed, attritable, optionally manned, or low-cost commercial solutions.

These trends have been enabled with the rollout of the Adaptive Acquisition Framework (AAF), which formalizes authorities granted by Congress and renews the focus of acquisition processes on innovation and speed. Ellen Lord, the undersecretary of defense for acquisition and sustainment has championed these changes and issued guidance on the new Middle Tier of Acquisition (MTA) and Software Acquisition pathways. Many RIAOs have been using and perfecting similar acquisition approaches for years.

Organizations like the Strategic Capabilities Office (SCO), Air Force Rapid Capabilities Office (AFRCO), Special Operations Command (SOCOM), Army Rapid Capabilities & Critical Technologies Office (ARCCTO)—formerly Army Rapid Capabilities Office (RCO), Army Rapid Equipping Force (REF), and Joint Improvised Threat Defeat Organization (JIDO) use rapid prototyping and fielding of available technology, often from the commercial sector, to deliver critical capability similar to the MTA pathway. DARPA conducts extensive prototyping as well but pursues less mature and disruptive innovation projects. DARPA has perfected the ability to attract NTDPs using Other Transaction contract vehicles to solve tough military problems.

Organizations like Defense Digital Service (DDS), Defense Innovation Unit (DIU) and Kessel Run have actively demonstrated how the software acquisition pathway could ideally work for programs. They have assembled high talent teams and established continuous integration and delivery software pipelines that provide iterative capability to warfighters.

New RIAOs like AFWERX, NavalX, and Army Applications Lab do not function as capability providers but rather serve as a conduit for resourcing, connecting and growing successful small-scale vendors. They provide an important role in building a strong NTDP base.

Recommendations

While the various RIAO incarnations differ in their specific functions, they each possess certain key characteristics that can be adopted for the larger acquisition enterprise. Using these key RIAO characteristics, this paper provides five broad recommendations and 20 detailed prescriptions to continue the defense acquisition system transformation and cement a culture that is poised for innovation and speed. These recommendations help enable full functionality of the Adaptive Acquisition Framework and posture DoD acquisition to meet the NDS mandates.

Key RIAO Characteristics	High-Level Recommendations
Maintain a High Operational Tempo	Energize a Sense of Urgency
Sustain High Organizational Risk Acceptance	Embolden Risk Tolerance
Maintain a High Level of Empowerment	Enforce Accountability and Elevate Trust
Use Broad Collaboration Networks	Elevate Insight and Collaboration
Operate in Small, Multi-disciplinary Teams	Engineer Organizations for Innovation
Maximize Use of Available Authorities	Effectively Wield Acquisition Tools

Recommendation 1: Energize a Sense of Urgency

RIAOs maintain a high operational tempo in meeting the needs of their customers and delivering timely capability. The criticality of assigned efforts and regular interactions with operational leaders ensures a dynamic environment where speed of delivery is recognized as critical and all team members strive towards that goal. John Kotter, a prolific Harvard professor, analyzed organizations striving to implement major change. He found that only 10% of organizations were able to fully do so and a sense of urgency was a foundational characteristic which he describes as "employees [who] are alert and proactive, scanning the environment for information relevant to success and where people come to work every day ready to cooperate energetically as a highly positive and highly focused force."[19] His study also found complacency is more common than thought and often invisible to individuals as it is an unconscious emotion rather than a conscious rational analysis.[20] Techniques to overcome complacency and energize a culture of urgency include the following:

Convey the Threats. Kotter identified one way to generate a sense of urgency was to connect insiders with the outside world. Acquisition professionals are susceptible to becoming ensconced in their world of acquisition strategies, contracts, technical meetings, and briefings. It is critically important to break through this siloed perspective. Providing relevant and detailed threat briefings using easily understood graphics and a compelling narrative conveying, for example, the situation U.S. forces would face in the South China Sea without critical capabilities, for instance, would be very helpful in bridging this gap. Briefings should be held at the highest possible clearance level and on a recurring basis. This impactful perspective would help connect a contracting officer processing an action or an engineer developing technical specifications to the mission and provide context for having a sense of urgency. Although these briefings occur now, the acquisition workforce is typically not included. Leaders should establish a mechanism to include acquisition professionals and help build connection to the outside the office world.

Leaders Act with Urgency. Leaders serve as symbols of the organization and their actions speak louder than any words or posters. Harvard Business Review found that a leader's behavior, specifically for routine activities has a strong influence on the conduct and performance of their teams. The more senior the leader, the more impact.[21] Certain actions, such as not being available to make decisions or help, can be interpreted as complacency. JIDA made it a point that decision-makers attend weekly meetings to ensure timely approvals.[22] They also emphasized speed as a key priority recognizing that strong leadership support can eliminate entrenched "speed bumps" that create drag. JIDA even adopted a seal emblazoned with the Latin motto "Apto Aut Morior," or "I must adapt or I will die."[23] Acquisition leaders should ensure that they are not inadvertently contributing to complacency but instead energizing their organizations with their actions. An example is leadership setting time aside for weekly "informal one-on-one idea discussions" that anyone can schedule to express a concern, request assistance, or get advice.

Connect the Team to Users. In addition to conveying the threat situation, acquisition professionals from all functional areas also need to understand their users. The AFRCO embeds military personnel such as aircraft maintainers or missile operators to act as part of the program office team.[24] Kessel Run and other software factories have demonstrated that

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[19] Kotter, 2008, p. 8
[20] Kotter, 2008, p. ix
[21] Chamorro-Premuzic & Bersin, 2018
[22] Miller, 2013
[23] Craft, 2015
[24] Tonico Beope 2018

operator proximity is key to agile software development success. Raj Shah, former DIU director, noted that risk has shifted "from the acquisition cubicles to the field" and it was critical to get operators closer to developers.[25] SOCOM's current acquisition executive attributes much of their success to having his organization co-located with a combatant command providing "firsthand understanding of priorities and urgency."[26] While this situation is not possible for all acquisition organizations, leaders can explore ways to connect their team to operational users. The F-16 SPO created an operational familiarization class for their members to visit their users and gain an operational perspective. The class received rave reviews and provided an important perspective.[27]

Recommendation 2: Enforce Accountability and Elevate Trust

RIAOs have a strong sense of accountability due in part to proximity to senior acquisition and operational leadership that rely on them to meet critical, time-sensitive requirements. They also enjoy significant trust due to past successes. Not all acquisition organizations and programs enjoy that. Executing an acquisition program is a complex and dynamic proposition. There are more opportunities to onboard commercial innovation and accelerate delivery than ever before, but transitioning technology can still be challenging. Programs that need to staff every decision up the chain and battle resistance at multiple levels cannot respond to these opportunities in a timely fashion. Thus, experienced acquisition professionals must be trusted to do the right thing. Program managers (PMs) and contracting officers (COs) have many options available to them. They must be allowed to choose the right path for their program. As a DAU professor succinctly put it, acquisition professionals today need to become chefs, not cooks.[28] To enable that mentality, trust is needed, and with it must come accountability. There is too much at stake to allow incompetency, complacency, or neglect to negatively impact important acquisition efforts. Senior acquisition leaders must balance monitoring their workforces and correcting issues early while also providing them the freedom to navigate the system.

Push Authority Down. There has been positive movement to increase trust in the DAS. Since 2017, all but nine major programs have been delegated to DoD components. Component acquisition executives have further delegated most ACAT II and III programs to PEOs. The Air Force delegated 300 ACAT II and III programs below the PEO-level.[29] This trend must continue with programs fully delegated to highly trained and experienced O-5/GS-14 personnel hand-selected as program managers, product managers, or material leaders. This proposed action is consistent with the new DAS tenets, which include empowering program managers as a top objective.[30] It also coincides with the new Vice Chairman of the Joint Staff's viewpoint that lower-level officers be given appropriate "authorities and responsibilities" so they can move fast to deliver capability.[31] The AFRCO director noted he is not given special exemptions, but instead there is "leadership trust in the organization and program managers."[32] Their contracting community enjoys this too with the AFRCO contracting chief, noting that the key to success is "empowerment built on trust [that] drives innovation."[33] Translating this empowerment ideal to action means that program managers and contracting officers have authority to make decisions on 90% of program activities without additional permission. It recognizes that some decisions with

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[25] Senate Armed Services 2017
[26] Machi 2018
[27] Bailey 2020
[28] Riel 2020
[29] Senate Armed Services 2017
[30] AAF 2020
[31] Jackson, 2018
[32] Tonico Beope, 2018
[33] Keller, 2020

wide-ranging impacts might require senior leadership buy-in. Leadership should establish command intent on when decisions should be elevated while also encouraging maximum flexibility.

Expand the Idea Space. A major element of trust in an organization is the ability for all individuals to feel empowered enough to offer ideas or suggest improvements. As the AFRCO contracting chief noted, "The collective input of the team provides valuable insights far exceeding what one or a few leaders could come up with on their own."[34] A Harvard study showed younger and less experienced employees usually feel less constrained and are often an organization's best innovators.[35] The current Navy acquisition executive established the NavalX organization for this very reason. He realized that taking a top-down attitude to solving acquisition problems was limiting innovation since it removed creative junior members from the process. NavalX strives to ensure that all service members be given "creative maneuver space to apply their intellect and will to the complex problems of the future."[36] This model has enabled SOCOM to be successful. The SOFWERX director noted they get their best ideas from their operators. At last count, 69 projects were generated from the SOF operational community, two of which became programs of record."[37] This approach needs to be applied across the DAS where everyone's opinion is valued and it is commonly understood that a new lieutenant, GS-9, or senior airman may have the idea that solves the problem. Acquisition leaders should not fear being undermined but recognize open ideation from less experienced personnel as an innovation asset.

Invert Your Organizational Chart. While there must be one leader responsible for a program who can assign tasks, make key decisions, and be accountable, that is not their only role. Sometimes, it is important for leaders to "take orders" from the team as Col Enrique Oti learned in standing up for what would become Kessel Run. He found his greatest role was in addressing the problems impairing his team's progress and in advocating for resources to support their needs.[38] In the new dynamic environment in which defense acquisition is taking place, designated leaders need to look for ways to build trust with their teams and avoid the ego trap of trying to control every action in the organization. Trust does not mean ceding your role as a leader. Instead, leadership becomes a combination of coaching, encouraging, guiding and driving.[39]

Challenge the Team. There are few better ways for leaders to establish trust with their team while also reinforcing accountability than to set a challenging goal and have them achieve it. The Army REF has successfully used this approach to rapidly award contracts by giving their teams a goal of 60 days. At the time of the interview, the commander calculated the average time to award at 59 days.[40] DIU's strategic engagement team takes a similar approach when they issue a problem statement to the commercial sector. Their director noted that they set a goal to award a contract within 60 to 90 days, and then to move through the prototyping phase and field new capabilities within 24 months.[41] Acquisition leaders can utilize this approach in different ways to push their teams to achieve excellence through challenging goal-setting while also demonstrating that they trust them to devise the means of execution.

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[34] Keller, 2020

[35] Zak, 2017

[36] Smart et al., 2020

[37] Thornton, 2018

[38] Perkins & Long, 2020

[39] Coleman, 2020

[40] Col Jack Dills

[41] Harper, 2020

Move or Remove Poor Performers. RIAOs tend to hand-select their personnel and find replacements if they are not performing. In the larger acquisition community, removal of poor performers is rarely exercised. Too often, they remain in place despite being focused on self-preservation and failing to try new approaches to achieve expected user outcomes. In an NDS-driven environment, these behaviors should not be tolerated. Maintaining military dominance requires highly motivated, dedicated and accountable acquisition professionals. The current Chairman of the Joint Chiefs of Staff noted, "Officers doing acquisition need more freedom, longer tenure and critically stricter accountability."[42] All acquisition leaders need to exercise their full authority in removing poor performers by firing, retiring, or reassigning them to non-acquisition efforts. When they remain in the system, they create dysfunction. They demotivate new employees. They create drag on a system that needs to be operating at full speed. More courage is needed in dealing with poor performers, reinforcing accountability and creating opportunities for promising talent to rise.

Recommendation 3: Embolden Risk Tolerance

Secretary of Defense Mark Esper has stated that he views the risk-averse culture in DoD acquisition as the main hurdle in modernizing the force and investing in emerging technology.[43] Much of this risk aversion is due to the DoD's process-oriented culture. As Philip Rodgers, the OSD Acquisition Approaches and Management director noted, "In the past…layers of oversight [were] aimed at risk aversion in the form of ensuring all kinds of things were checked off and approved."[44] Stan Soloway, a former deputy undersecretary of defense, calculated the cost of DoD process compliance at around 25% of every dollar spent on an effort, which is not sustainable given budget constraints.[45] An innovative group of Marine and Navy acquisition professionals recently wrote an article on the state of acquisition. The Navy acquisition chief Hondo Geurts noted in a LinkedIn post that every acquisition professional should read it.[46] The authors characterize the DAS as viewing new ideas with suspicion, being totally risk-averse, and relying upon a rigid structure for action that denies the full value of individuals. Their innovation prescription is to "drastically change our culture, encourage risk taking, and cultivate an environment where we reward bold thinkers."[47] They are surely right, and there are steps that acquisition leaders can take to move their organizations to manage risk and not fear it.

Provide Top Cover. The root of most risk aversion is fear. Leaders need to establish a safety net for employees which *Harvard Business Review* defines as "an individual's perception of the consequences of taking interpersonal risk … being seen as ignorant, incompetent, negative, or disruptive."[48] Leaders need to message to acquisition professionals that the NDS requires them to take risks, and they will not be punished for doing so. Innovation is inherently risky, but the organization needs to convey that the risk is not theirs to bear alone. Dr. Will Roper, Air Force acquisition chief, presents a good example of how leaders should view risk noting that "if there aren't any failures or missteps, there isn't enough risk-taking and there won't be any big successes." He even said he would reward "glorious failures" if they produce solid learning that can later accelerate programs.[49] The AFRCO contracting director noted that "leaders must make it safe to innovate" and ensure that "mistakes driven by well-considered

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[42] Tsiopana, 2019
[43] Barnett, 2020
[44] AAF, 2020
[45] Solway, 2016
[46] Geurts, 2020
[47] Smart, 2020
[48] Delizonna, 2017
[49] Tirpak, 2020

initiative does not equal a career setback."[50] JIDA leadership established a culture focused on mission focus, speed, and risk tolerance but also had a mechanism for ending projects early that were not demonstrating value.[51] Acquisition leaders make their workforce feel safe to pursue innovation whether that be trying a new acquisition pathway, novel contract, or innovative strategy, approach, or tool and also end efforts early that are not panning out.

Reward Behaviors. Accountability means demanding results against challenging but achievable goals. However, it also means recognizing that innovation is risky, and behaviors need to be rewarded even when desired outcomes are not achieved. The nation's oldest venture capital firm, Bessemer Venture Partners, markets itself as having been afforded "an unparalleled number of opportunities to screw up."[52] The important component that acquisition leaders should evaluate from failures was if the team's mindset and behaviors were aligned to deliver innovative solutions. Elon Musk has stated he does not punish those who try to innovate and fail, but rather those who fail to try. He notes that it is not enough to use words to encourage innovation, there must be an aligned incentive structure.[53] RIAOs consistently win acquisition awards for their ability to rapidly deliver innovative capability. Acquisition leaders should adopt mechanisms to recognize members who pursue innovation with the right behaviors but are unsuccessful. This will help the acquisition community become more risk tolerant in achieving NDS objectives.

Recommendation 4: Elevate Insight and Collaboration

Innovation rarely happens in a vacuum. McKinsey Consulting recognizes innovation as more often occurring by "melding existing ideas or products with new ideas or products to form a unique solution.[54] Fusing existing capabilities into unique warfighter solutions is the RIAO model. Using their networks, they identify military or commercial technologies mature enough to be integrated. The larger NSIB now needs to similarly connect the S&T and program office worlds by providing greater insight and by fostering collaboration to develop novel solutions to challenging problems. Organizations like DIU, AFWERX, and NavalX, as well as an ecosystem of technology accelerators, have made enormous progress in bridging gaps between industry and the government. DIU has successfully employed defense engagement teams to scale prototyped technology and a commercial engagement team to enable technology firms to transition products into a program of record.[55] AFWERX requires vendors competing for a SBIR Phase II award to first gain commitment from a program of record to which it will transition their technology. This is real progress, but more can be done to improve insight for acquisition programs and NTDPs.

Create a Map. Despite efforts to date, the NSIB has minimal insight into the collective technology development efforts across the DoD. Much of this information exists in research papers, organizational-specific databases, disparate spreadsheets, or has never been collated. While some might be classified, much is only accessible through limited informal channels. This leads to a situation where enterprising program managers do not have a sight picture on what technology is available from academia, military laboratories, or the commercial sector to integrate into their programs. This is critical because PMs need to conduct advance planning to onboard capabilities that are not already part of their program baseline. A DoD-wide tool that captures key data elements such as technology area, project synopsis, current maturity level,

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[50] Keller, 2020
[51] Craft, 2015
[52] Anthony, 2017
[53] Hitchens, 2020
[54] Sull, 2015
[55] Harper, 2020

and a POC would be highly beneficial. This tool could also serve as a demand signal tool for PMs who want to push more upgrades on their programs but do not want to rely on their prime contractor for innovative solutions. This would also help solve a problem articulated by David Schiff, NavalX deputy director, that NTDPs are continually challenged in finding a DoD customer for their solution. His point is that, "as we look to the future, it's vital that our agencies come together with a collective voice to interface with the private sector."[56] Therefore, it is critical that OSD work to create an innovation insight tool that provides transparency and key information, empowers the DoD and industry alike, and promotes collaboration.

Make the Overseers Assistants. When Jack Welch revamped General Electric, he eliminated personnel whose role was to "second guess" and directed that "corporate staff no longer just challenges and questions; it assists."[57] OSD has a statutory oversight function but Congress has made clear in recent NDAAs that it now views OSD more as an enabler than an overseer. This is a critical change from years past where the GAO found major programs might have to gain reviews by up to 56 organizations at eight levels for a milestone decision.[58] While that level of oversight was onerous, OSD does have expertise and insight to offer programs. Program offices harbor deep suspicion about "OSD assistance" so the transition to partnership will not be an easy one. However, there are examples of how this can work. Tory Cuff, Senior Advisor for Agile Acquisitions within A&S, has helped DoD organizations stand up agile software pipelines to provide more rapid capability upgrades. With the many OSD functional offices and Joint Staff organizations, there are many more beneficial teaming opportunities that can be formed. OSD and service acquisition leaders should work to break down barriers between their organizations and encourage greater collaboration. This is aligned with RIAO best practices of maintaining minimal oversight functions and teaming with functionals to achieve incredible outcomes.

Share Best Practices. There are many federal acquisition organizations attempting new innovative techniques to ease the procurement of key products. The Procurement Innovation Lab (PIL) at the Department of Homeland Security (DHS) serves as a "safe space to test new ideas, share lessons learned, and promote best practices."[59] The Federal Acquisition Institute also hosts the Periodic Table of Acquisition Innovations.[60] A collaboration between the AFRCO and AFWERX is underway to share contracting best practices across the acquisition enterprise.[61] General Holt, the senior champion for the effort wants to show contracting professionals how they can "take all the existing laws and all the regulations [and] hack them in a way that shows and proves we can lower the barriers to entry."[62] The DoD should establish a common site where acquisition professionals can collaborate, share best practices and access examples of successful efforts to help break down barriers in more risk averse acquisition organizations.

Recommendation 5: Engineer Organizations for Innovation

RIAOs benefit from being organizations that were enabled for speed and innovation from their origin. Most acquisition organizations were organized around specific acquisition programs or around tiered leadership structures. The structures and practices of these outdated offices need reexamined with an eye towards simplification and enablement of the four acquisition

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[56] Fetter, 2020
[57] Tichy & Charan, 1989
[58] GAO, 2015
[59] DHS, 2020
[60] FAI, 2020
[61] Keller, 2020
[62] Miller, 2020

trends. One mid-career acquisition professional, when asked what he would change about the system, responded that he found it "fascinating how redundant our processes are, how inefficient they are, how wasteful they are" and would like to simplify the overarching system.[63] The DAS does not have to operate this way; it is within the power of leaders to organize more effectively and simplify operations so that speed and innovation are fostered.

  Build Small, Highly Expert, and Accountable Teams. Smaller, highly skilled teams are often better able to pivot and exploit opportunities. SOCOM attributes having "an acquisition team that's as specialized, disruptive, and agile as their operators" as the reason for their success.[64] General Arnold Bunch, Commander of the Air Force Life Cycle Management Center, envisioned all acquisition programs structured more like the AFRCO programs with small, cross-functional teams "that are empowered to make decisions and go forward."[65] The REF uses a construct where requirements, acquisition, logistics and contracting personnel reside in one collaborative cell and the number of people in a process is minimized to avoid non-value-added activities.[66] JIDA also found that "small teams when combined with empowerment enable a shorter chain of command," which is critical for agile decision-making. By comparison, they found larger teams were "slower and required more managerial energy to organize, synchronize and direct."[67] Evan Wittenberg, director of Wharton's Graduate Leadership Program, noted that "while research on optimal team numbers is not conclusive, it does tend to fall into the five to 12 range."[68] Another Wharton professor, Jennifer S. Mueller, conducted research showing that "managers tend to bias their team size toward overstaffing."[69] With an increase in trust and less bureaucratic requirements to fulfill, programs should need less staff and can improve their agility and responsiveness to user's evolving requirements and technology opportunities.

  Ruthlessly Simplify. Defense acquisition is replete with complexity consisting of rules, guidance, and documentation, as well as multiple stakeholders across two government branches. Therefore, acquisition leaders should take every opportunity to simplify the system in their span of control. Jack Welch believed that for an organization "to be effective, it must be simple [and that] only frightened, nervous managers use thick, convoluted planning books and busy slides."[70] Steve Lauver, AFWERX tech accelerator director noted, that "startups and small businesses are moving faster than the government is … [and] before they would consider working with us, we needed to simplify and accelerate our process."[71] This is critical in attracting the innovation potential of our NTDPs. JIDA found that they "increased speed by eliminating processes and systems that added little value."[72] With the NDS acquisition mandates of speed and innovation, time needs to be considered a valued commodity. Acquisition leaders should follow the DIB recommendation to "establish incentives for process simplification that increase performance or efficiency, save time or money, or reduce impediments to the mission" and find ways to reduce staffing times, eliminate reporting requirements, and cut unnecessary meetings.[73] Time that a program team spends executing low value-added activities is time lost to near-peer competitors.

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[63] Anonymous, 2020

[64] Thornton, 2018

[65] Insinna, 2017

[66] National Academies of Sciences, Engineering, and Medicine, 2016

[67] Craft, 2015

[68] Wharton, 2016

[69] Wharton, 2016

[70] Tichy & Charan, 1989

[71] Fetter, 2020

[72] Craft, 2015

[73] Defense Innovation Board, 2019

Hire the Right People. RIAOs are often in the enviable position of being able to hand-select personnel. These are mostly high-performing individuals with demonstrated abilities. Training and development can help improve performance, but there is no substitute for hiring a person with the right aptitude and mentality for the job. A meta-analysis of 112 psychological studies identified seven key traits that were positively correlated to individual differences in cognitive growth and the accumulation of knowledge. They included a tolerance for ambiguity, novelty seeking, openness, intellectual curiosity, abstract thinking, and social curiosity.[74] The Defense Business Board identified additional factors to be considered such as judgment and decision-making, business competence, resourcefulness, drive and commitment, and respect by peers.[75]

The Project Management Institute considers a PM's success due to 50% from technical skills and the remainder to sociability, leadership, and comfort with change.[76] JIDA found that when hiring contractor support, they were willing to pay more for top talent since "someone that costs twice as much but gets the job done in a tenth of the time can be the right investment if an organization wants to save money, innovate, and increase speed."[77] To select new commanders, the Army has initiated the Battalion Commander Assessment Program (BCAP) where they send candidates through a series of physical, cognitive, and non-cognitive assessments including interviews with behavioral psychologists and panel interviews with senior Army officers.[78] Acquisition leaders should assess desired characteristics for the various positions in a program office. They should take a more deliberate approach in hiring new PMs and COs potentially including psychological tests. They should also be willing to pay more for key contractor support since service contract bidding wars have driven salaries way down. It is critical to staff programs with the right personnel to ensure acquisition organizations are poised for innovation and speed.

Recommendation 6: Effectively Wield Acquisition Tools

RIAOs rarely have special acquisition authorities; rather they use all the tools at their disposal and know how to effectively maximize the flexibilities inherent in the current system. They do not use overly burdensome contract vehicles that delay delivery of capability or deter new commercial entrants. They recognize the importance of the DoD retaining influence in the commercial space by grooming and funding high potential vendors. The do not add additional requirements not statutorily required or needed for successful program execution. However, in the larger DAS, these things often occur. Functional communities across the DoD often feel the only way to retain influence is by imposing additional requirements on programs. Acquisition leaders need to identify and correct areas where flexibility is being artificially inhibited.

Maximize Flexibilities. A former Army RCO director identified a major differentiator for the organization Army leadership providing authority to "streamline and tailor the processes and policies that are in place for acquisition and how we do business."[79] Statutory mandates were not the limiting factor; rather it was restraints placed by the service. This is a common situation across the acquisition enterprise. Even within the new Adaptive Acquisition Framework, there are signs that inflexibilities and non-statutory requirements are creeping back in. Congressional authorities that enabled the Middle Tier of Acquisition (MTA) pathway also exempted it from the Major Defense Acquisition Program (MDAP) designation. This provided programs significant

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[74] Chamorro-Premuzic & Bersin, 2018
[75] Defense Business Board, 2011
[76] Wood, 2020
[77] Craft, 2015
[78] Army Talent Management Task Force, 2019
[79] Jones-Bonbrest. 2018

relief from statutory documentation and OSD oversight. In the same act, Congress also delegated new MDAP programs down to the components. However, final MTA pathway guidance now requires components to obtain written OSD approval to use the pathway for MDAP-sized programs, effectively reestablishing the oversight mechanisms that the pathway was created to avoid. Functional guidance also continues to impose MDAP-like requirements on a pathway intended to be streamlined. It remains to be seen what requirements will be imposed on the new Software Acquisition pathway. If we allow bureaucracy to overwhelm our fastest routes to deliver capability, then the ability to achieve NDS speed mandates is diminished and the enemy gains time. This tendency is not confined to OSD; it also exists at component-level staff, acquisition center functionals, Program Executive Office staffs, and at lower levels above the program office. This must change. Acquisition leadership must avail itself of all flexibilities provided without adding new burdens. That is the only way to retain U.S. military dominance.

Use Contracts Effectively. RIAOs know that contracting is a critical enabler to achieve rapid innovation. For the larger acquisition community, the contracting function is in desperate need of transformation. Contrary to congressional language and numerous directives over the last decade, Ed Keller, the AFRCO contracting director noted, "there are no bad contract types, just bad application."[80] He takes the stand that if the contract and its terms and conditions are not working, then they should be changed, what the AFRCO calls "active management." He emphasizes that the way to handle a failing contract is to "not just watch Rome burn [but] use [it] to save the city." [81] This approach ensures a focus on mission outcomes rather than process compliance. This change is evident in the increased use of Other Transactions (OTs).[82] Previously, contracting officers (COs) focused on ensuring that Federal Acquisition Regulation (FAR) clauses were fully captured in dense, nearly unreadable contracts. With the expansion of OTs, there is more flexibility to be judicious and only choose the FAR clauses required for the effort. However, the full power and flexibility of OTs is not always exercised, and they are often being "FAR-atized," which diminishes their power to continually attract needed NTDP innovation. This must change to avoid reversals in the government and commercial sector partnerships that are underway. Keller notes the best way to use OTs and attract key non-traditional innovative vendors is just to "take out the stuff they find most onerous and objectionable" like provisions and clauses that drive excess oversight or data collection such as "Sections I, K, TINA and CICA documentation requirements."[83] Apart from OTs, there are numerous other tools in the contracting toolbox. This includes innovative acquisition approaches and techniques such as Procurement for Experimental Purposes (or 2373), CRADAs, Technical Demonstrations, Public–Private Partnerships, Challenge-Based Acquisition, and Incentive Prize Challenges. JIDA frequently leverages these acquisition techniques and pilots new approaches to effectively and rapidly acquire innovative solutions. Their philosophy is to "build a flexible contract strategy focused on speed and innovation."[84] Contracting leadership at all levels need to reinforce this thinking. No organization will be successful merely by using a particular contracting tool or innovation approach; rather the entire community needs to adopt a mindset that focuses on achieving mission outcomes that enable the NDS objectives.

Create More Partnerships. To achieve NDS objectives, industry must become a partner in the fight. If contracts cannot be awarded in a timely fashion, then the ability to rapidly deliver capability to the warfighter becomes much more challenged. The government needs to become a more interactive partner. The AFRCO contracting chief believes in having "open and

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[80] Keller, 2020
[81] Keller, 2020
[82] GAO, 2020
[83] Keller, 2020
[84] Craft, 2015

frank dialogues with industry" to accelerate proposal development and negotiations. He found that "active engagement at the corporate level resulted in commitments to improve proposal quality, cost analysis reports and justification of rates" with one proactive vendor standardizing subcontractor proposals to make evaluation easier.[85] The SOCOM acquisition executive agrees and found that getting industry feedback on how well the government communicated "before and after a solicitation very useful in improving the relationship."[86] SOCOM also takes advantage of a partnership intermediary (SOFWERX) to provide an "objective third-party broker between government and industry to increase opportunity for commercialization of new capability."[87] SOFWERX is a collaboration lab "building an ecosystem of small businesses, academics and laboratories in order to discover innovations that may be of interest to SOCOM, and facilitates their access to defense money through agile acquisition processes."[88] Some direct benefits of these partnerships is they provide an industry entry point to provide solutions the military may not have been aware of, provide users an opportunity to interact early and provide feedback, enables industry to partner with the larger defense research enterprise, and helps to improve technology transfer across the DoD. Acquisition leaders should consider expanding use of these partnerships, including the use of joint collaborations for technology specialty areas.

Conclusion

After operating in a constrained system with so many fixed rules for so many years, the acquisition workforce is undergoing a tidal change in how they strategize, plan and execute. The AAF provides an opportunity for programs to exercise creativity in a way not possible for many years. It will take acquisition professionals time to grasp the nuances of the options available to them. Acquisition leaders need to encourage their people to explore and use flexibilities and resist the urge to impose restrictions. They must energize the workforce to recognize the criticality of their efforts. They must empower them to exploit the technology advances from the defense research enterprise and the commercial sector. They must assist them in building the needed networks and partnerships. They must hire the right people entering the workforce and maintain accountability of those in the system. They must encourage the use of all available acquisition tools. The prescriptions in this paper represent a small fraction of the actions the enterprise need to take to be fully postured to meet NDS objectives but adopting key RIAO characteristics is a great way to continue the positive momentum that has been started. Each acquisition leader should evolve and adapt them for the specific needs of their organizations.

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[85] Keller, 2020

[86] Machi, 2018

[87] AAF Contracting Cone, 2020

[88] Thornton, 2018

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