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Accelerating Defense Acquisition

Faster acquisitions produce a stronger force

By Pete Modigliani and Dan Ward

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> *"What keeps me up at night is not North Korea, but the fear that the U.S. has lost its ability to go fast."*
>
> **- Gen John Hyten, U.S. Strategic Command Commander**

The United States has enjoyed significant technical advantages over our adversaries in most conflicts over the last 100 years. That may not be the case for future conflicts, as the 2015 novel Ghost Fleet demonstrated. In this fictional account of a near-future World War III between the United States and China, America's military superiority was eroded by an adversary able to quickly outmatch and undermine our most advanced technical systems.

Several of the U.S. military's most advanced weapons systems were defeated by comparable enemy systems based on designs and technologies stolen from U.S. defense companies, then fielded in a fraction of the time it took the United States.

If such a thing were to happen in real life, our future military leaders would look to the current Department of Defense (DoD) research and acquisition enterprises for the source of their difficulties. As they reflect on what could have been done differently, they could reasonably point to the slow pace of acquiring and delivering military capabilities as a major contributor to America's losses. This is hardly a new hypothesis, of course. As far back as 1986's Packard Commission report, the acquisition community has known that "an unreasonably long acquisition cycle... is a central problem from which most other acquisition problems stem."

As the 2018 National Defense Strategy (NDS) says, the United States has entered a new era of great power competition with the rise of China and a resurgent Russia. Further, the technical advantage the U.S. military has long maintained over its competitors is steadily eroding, as our competitors have the same access to the globalized technology marketplace driving innovation that we do. Commercially driven breakthroughs in new technologies – artificial intelligence, advanced autonomy, robotics – are changing the very character of war. That our competitors have access to these same technologies risks eroding the conventional overmatch to which our military has grown accustomed.

The NDS acknowledges that DoD is in a race to develop and integrate cutting-edge technologies before its competitors do the same. Yet DoD's bureaucratic structure, lengthy processes, and risk-averse culture inhibit timely adoption of new technologies. The reality is that our competitors can iteratively field new systems in faster cycles, rapidly eroding our military, economic, and technical superiority.

Some parts of the acquisition community move faster than others. Special Operations Command (SOCOM), for example, is well known for its ability to quickly deliver affordable, effective new weapon systems. The former SOCOM Acquisition Executive (and current Navy Acquisition Executive) James "Hondo" Geurts famously said, "Velocity is my combat advantage".

His use of operationally focused language ("combat advantage") instead of administrative language ("buying power") is not an accident, and it reflects his perspective on why the military develops technology in the first place. In a similar vein, Dr. Will Roper, the Air Force Acquisition Executive, has coined "Celerity!" as a mantra to encourage the Air Force acquisition workforce to go faster.

Of course, delivering real battlefield advantage requires more than just raw speed. It also requires a nuanced capacity for agility, the ability to rapidly adapt to change – particularly when facing the emergence of new capabilities or an adversary's new way of operating. That means DoD requires agile systems, organizations, and strategies. Because most major weapon systems are increasingly software intensive, DoD must employ modern software development practices such as Agile and DevOps. Agile typically entails small, frequent releases; valuing working software over documentation; being responsive to changes; and active user involvement throughout development. DevOps is a related set of practices to integrate and automate processes between software development teams and operations to deliver software faster. Adopting Agile and DevOps practices extends beyond writing software code and requires deeper changes to program structure, requirements, contracting, testing, systems engineering, and culture.

In researching successful organizations, programs, and initiatives across DoD, other federal agencies, and industry, MITRE identified the following set of specific practices to enable speed and agility. We are working with many federal agencies to apply these practices to accelerate their acquisition programs and enable adoption of Agile development practices. We are relentlessly focused on shortening the time from idea to Initial Operational Capability (IOC).

"Success goes to the country that … better integrates technology and adapts its way of fighting. Our response will be to prioritize speed of delivery, continuous adaptation, and frequent upgrades."

- National Defense Strategy

Leadership and Culture

Culture is a key determinant of organizational performance, particularly in acceleration, Agile, and innovation. Culture refers to a wide range of beliefs, behaviors, and standards that influence an organization's activities and outcomes. The norms and behaviors of a team are strongly influenced by the organizational culture in its parent organization.

Leaders have the opportunity – and the responsibility – to influence their team's culture. One simple way to do this is to develop a strategic plan for establishing specific norms and behaviors related to agility. A leader might help foster a culture of experimentation and rapid learning by providing training and tools that support such behaviors. Leaders can further reinforce a culture of speed by delegating decision authorities to those closest to the action. And since rapid project teams often encounter resistance, ranging from passive skepticism to open opposition from key stakeholders, leaders could provide public support and recognition for acceleration to help overcome the resistance.

Acceleration introduces new risks to a program while reducing others. While the net change is generally positive, leaders and staff must be mindful of the overall risk profile associated with acceleration. Operating at a rapid pace also often requires the team to acquire new skills.

Fortunately, there are many training sources available across DoD and industry that organizations can leverage and tailor for their environment.

Scope and Requirements

Effectively scoping a program, increment, or release is a critical element of delivering capabilities in a timely manner. The key is to scope the work that leverages mature technologies, is affordable within the available budget, and can realistically be delivered within the needed timelines. To help meet expected delivery dates, some degree of flexibility is needed in the requirements. The operational command should convey requirements via high-level objectives for the acquiring organization to iteratively deliver capabilities based on budgets, schedules, risks, and other factors.

DoD can accelerate delivery of innovative solutions by designing acquisition portfolios that deliver an integrated suite of smaller capabilities, rather than monolithic stand-alone systems. Operational commands should consider authoring a Capstone Portfolio Requirements document to cover a broad mission or capability area rather than that of a single program. Acquirers and developers should focus on rapidly delivering a Minimum Viable Product (MVP) to accelerate learning. An MVP is the smallest possible product that is valuable, usable, and feasible. This replaces DoD's traditional approach of elaborate planning, intuition, and big-bang upfront design with practices that favor experimentation, customer feedback, and iterative design.
One key to iterative design is requirements that are iteratively defined. These requirements can be managed via program, release, and sprint backlogs rather than through formal requirements documents. DoD must give up the fallacy of defining all the requirements for a system upfront.

As the NDS stressed, "a rapid, iterative approach to capability development will reduce costs, technological obsolescence, and acquisition risk." A close partnership and active collaboration between users, acquirers, and materiel developers is critical to ensuring delivery of mission-impactful solutions.

System Design

Accelerating the pace of delivery is not about simply "turning the crank faster." We must also take a fundamentally different approach to the way we design systems in the first place.

The discipline of Design Thinking (and its related discipline, Human-Centered Design) is an important enabler of speed. It combines empathy for users, immersion in the problem, creativity in the generation of insights and solutions, and a data-based experimental approach to assess the quality of solutions. The related discipline of Systems Thinking balances holistic thinking and reductionist thinking, enabling programs to arrive at effective solutions sooner and avoid unnecessary delays and rework.

Prototyping, experimentation, and rapid deliveries of MVPs in the early phases of the acquisition life cycle should shape system design. Agile and iterative developments value putting capabilities in the hands of users and shaping future releases based on performance and feedback. Implementing a modular open-systems approach enables innovation, interoperability, and technology refresh from a variety of competing vendors. Trimming is an iterative technique for removing unnecessary elements from technical designs, system architectures, process diagrams, communications products, and organizational structures.

Documentation and Reviews

Documentation can consume a significant amount of a program's schedule. To accelerate a program, the team must constrain the amount of time spent developing, reviewing, and approving documents. The GAO reported in 2015 that acquisition programs spent over two years on average completing numerous information requirements for their most recent milestone decision, yet acquisition officials considered only about half of the requirements as high value.

One example of a sound approach to documentation comes from the Agile Manifesto. The Agile software approach emphasizes working software over comprehensive documentation and offers this perspective: "Simplicity – the art of maximizing the amount of work not done – is essential." While writing documentation is important, not writing documentation is also important. That is, an acceleration team should aim to produce only the documents that are useful and needed to manage the program, rather than writing "compliance only" documents that exist only to satisfy the interests of an outside stakeholder. The Pareto principle offers a useful rule of thumb – if 80% of the results come from 20% of the effort, focus on documenting the most valuable elements of the program's strategy. Similarly, programs should apply the concept of Minimum Effective Dose to their documentation. This concept comes from the medical community, where doctors and nurses recommend patients take the least amount of medicine that delivers the desired effect. Acquisition programs should adopt a similar Minimum Effective Documentation strategy, aiming to produce "as little as possible, as much as necessary."

This involves identifying what information is required and developing the minimum set of documents that can capture the required information. While a functional oversight organization may expect a functional document, a program office may merge the content of that document with others to minimize the number of documents to coordinate. Communicating the intent of this tailored approach in advance helps increase the buy-in from reviewers and other stakeholders.

Contracting

Contracting is often one of the longest lead items in the acquisition life cycle, and one of the riskiest. Traditional contracting methods can take 18 months to three years to compete and award a contract. This increases the risk of the program delivering products that are operationally irrelevant, technologically obsolete, or both.

Successful acquisition organizations approach contracting as a holistic business strategy where program managers partner with their contracting officers early to develop and shape the strategies. They work together to achieve the mission objectives within the environmental constraints. Far too many acquisition organizations separate contracting from the program offices to "process the paperwork," which leads to lengthy timelines and poor contract strategies.

Leveraging existing contracts to award a task or delivery order saves significant time over developing and awarding a new contract. Programs should first look to the array of existing contracts to see if the scope of work and pool of vendors meet their needs. Program Executive Officers should establish multiple-award contracts to cover a broad portfolio area.

If established correctly, these contracts have aggressively streamlined processes with standardized language, terms, and metrics to enable rapid orders. Similarly, a portfolio can establish its own Other Transaction Authority (OTA) Consortium to tap a pool of nontraditional vendors focused on their portfolio capabilities. These portfolio vehicles enable each program and project to aggressively cut contracting timelines.

There are a wide array of Federal Acquisition Regulation (FAR) and non-FAR contracting strategies available to the acquisition community, with ample flexibilities in their use. Instead of a traditional, lengthy FAR Part 15 approach, many use OTAs, Broad Agency Announcements, Federal Supply Schedules, Simplified Acquisition, and Commercial Items to reach contractors in a fraction of the time. The FAR explicitly encourages speed, agility, and innovation, yet many interpretations assume that a lengthy approach is safer. The FAR also stresses using modular contracting to the maximum extent practicable, by dividing large efforts into a series of smaller efforts.

Contracting officers are the linchpins of a successful government–contractor partnership, which is critical to success. They can identify the key levers (e.g., progress payments and bonuses for cash flow) to incentivize contractors for speed to delivery.

Summary

The current operational environment demands that acquisition professionals accelerate their capability deliveries. The culture has begun to shift over the last two years from controlling costs to accelerating schedules. There are proven strategies and tactics throughout the acquisition life cycle to lean the acquisition and requirements processes to achieve IOC sooner. The current leaders in the Pentagon are strong champions of speed and agility. Congress has also been a strong proponent of speed, offering a series of new authorities and flexibilities to go faster, to include the popular Middle Tier Acquisition. There are also opportunities to accelerate other major schedule drivers across the acquisition life cycle, to include test and evaluation. The time is ripe for acquisition professionals to lean forward and accelerate deliveries of innovative solutions.

About the Authors

Pete Modigliani is a Senior Defense Capability Accelerator within The MITRE Corporation. He works with acquisition executives and CIOs across defense, intel, and civil agencies on enabling speed, agility, and innovation in their enterprises and major programs.

Dan Ward is a Principal Systems Engineer at The MITRE Corporation. He specializes in rapid innovation and is the author of two books: The Simplicity Cycle and F.I.R.E. – How Fast, Inexpensive, Restrained, and Elegant Methods Ignite Innovation.

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