How DoD Can Modernize Faster
February 9, 2023
*The world is in midst of a technological revolution, and the DoD
is not doing nearly enough to keep up.*

The United States, its allies, and its adversaries are in an era of rapid technological advancement: artificial intelligence, machine learning, hypersonic weapons, quantum science, and ubiquitous sensors are all examples of significant technological change in recent years. To identify new technologies, quickly scale them, and get them into the hands of the warfighter before our adversaries, the Department of Defense (DoD) must transform. The Forum for American Leadership's Technology and Innovation Working Group provides a plan of action for the DoD and Congress to begin this necessary twenty-first century DoD transformation.

The DoD should:
● Update the resource allocation process.
● Ensure greater flexibility does not have to come at the cost of less oversight.
● Change the incentive structure to reward more risk-taking and quicker decisions.
● Make transformative leaps in specific areas to keep up with revolutionary technological change.

And at the congressional level, lawmakers should do the following to allow the DoD to identify new technologies, quickly scale them, and get them into the hands of the American warfighter before our adversaries:
● Give the DoD more flexibility by raising reprogramming caps and reforming the "use it or lose it" policy.
● Appropriate DoD dollars on time.

I. Update the resource allocation process.

Established more than 60 years ago, there are three main phases to how DoD decides to allocate its resources: requirements (Joint Capabilities Integration and Development System or "JCIDS"); planning, programming, budgeting, and execution (PPBE); and contracting and acquisition. The advantage of this cycle is predictability, but the cost is time. Requirements can take 1-3 years, planning and budgeting 2-3 years, contracting 6 months-2 years, and acquisition 5-20 years. That means, at a minimum, it takes over 8 years to deliver a new capability to the warfighter. As a result, by the time the warfighter gets the new capability, it may already be outdated, not to mention the threats themselves most likely have evolved or changed significantly. In contrast, the United States' most formidable adversary, China, uses a rolling budget process, allowing it to incrementally develop technologies without a multi-year programming process. One benefit of this process is that China can quickly move from one iteration to another. For example, China developed and fielded twenty-five new unmanned aircraft systems from 2010 to 2020 and nine visually distinct upgrades to the J-20 in five years before moving to production in 2015.

DoD and Congress have taken two important steps in the last two years to work to speed up DoD's modernization timeline. First, in 2020 under the leadership of then Under Secretary of Defense for Acquisition and Sustainment Ellen Lord, DoD updated its 5000 Series acquisition policies. The new "Adaptive Acquisition Framework" created six distinct, tailorable acquisition pathways to allow program managers to pick the best procurement pathway for their particular programs.

Instead of attempting to discern which legal and regulatory requirements may or may not apply to their programs, this change allows program managers to start with a baseline of rules that best fits their program and add in whichever additional requirements and acquisition best practices match their product or service. DoD needs to now implement this important update throughout the organization and figure out how it will monitor whether this new reform is actually speeding up the acquisition process without having an overly burdensome effect on cost and performance.

Compared to the acquisition phase of the DoD's budget cycle, few if any reforms have been made to the PPBE phase in the last thirty years, but Congress recently passed two important initiatives to change that. Sec. 1004 of the National Defense Authorization Act (NDAA) for Fiscal Year 2022 established a Commission to examine the PPBE process and make recommendations. This is a good first step. Reforming a piece of the DoD acquisition process as big as the PPBE will take time, which is why it is all the more important that members of the Commission lean forward and not settle for a report full of lowest common denominator recommendations.

A critical reform that the Commission should fully endorse is moving to a portfolio-management system: for each mission, DoD should identify the mix of capabilities that would produce the best outcomes at an acceptable cost and risk. Under this system, the focus would not be on a particular program in a budget line item but on a specific mission. Whatever technology (commercially available or not) best meets the mission demands would be quickly funded without having to jump through bureaucratic hoops or get bogged down in the PPBE process.

The second major step was taken by Congress in Sec. 8119 of the FY2022 Omnibus, which established a $100 million fund to help new technologies scale up and advance from prototype to program of record. The Defense Intelligence Unit (DIU) has done a good job taking advantage of other transaction authorities (which allows for flexible business arrangements exempted from some laws and regulations governing federal contracts in order to acquire R&D or to quickly develop a prototype) to identify promising new technologies in the private sector, including in venture-backed startups, and help acquire them for DoD. However, even highly successful pilot projects often have to wait 2 to3 years—or longer—to get on a program of record. In the long run, this gap has to be eliminated, but in the meantime the $100 million Accelerate the Procurement and Fielding of Innovative Technologies (APFIT) pilot program established in the FY2022 Omnibus to help successful pilot projects bridge this "valley of death" can help. DoD announced its first set of projects to receive funding in July, but unhelpfully spread the money out over 10 projects instead of focusing on just a few stand out ones. Regardless, DoD should also announce clear metrics for measuring success and publicly disclose how the awardees performed against these metrics. If successful, more and more promising pilot projects should

receive enough funding to survive the 2-3 years it takes to get into a program of record. Once in a program of record, these projects will get better technology into the hands of the warfighter.

While those two steps are important, there is much more to be done. New authorities and programs will have little effect if DoD personnel are not properly trained in how to use them. In order to get more private sector, bleeding-edge technology and innovation into the DoD acquisition process, DoD should train personnel to better understand the acquisition authorities already available to them. Most personnel tend to stick with what they know, not realizing that there are better, more flexible options available that would help DoD modernize faster.

II. Ensure greater flexibility does not have to come at the cost of less oversight.

The current information flow from DoD to Congress does not give an accurate assessment of program performance and risk. For example, Selective Acquisition Reports (SARs), written by program managers and periodically submitted to Congress, fail to give a full, timely picture of program performance, including how the programs performed in tests and operations, and what roadmaps are in place. As a result of Congressional pressure in multiple defense authorization bills, DoD proposed a web-based reporting approach intended to improve efficiency and data transparency by providing real-time cost, schedule, and performance data on DoD acquisition programs for Congress starting October 1, 2021. As of February 2022, however, GAO found that DoD had not only failed to roll out this program by the specified start date, but also had yet to even determine which programs the department would report on and how it would provide Congress access to data. As it did in the FY2022 NDAA, Congress should keep pushing DoD to follow through on implementation. And the Under Secretary of Defense for Acquisition and Sustainment should heed GAO's recommendations by creating a dedicated implementation team that has the capacity, including staffing and resources, to manage the reform process and develop an implementation plan with key milestones and deliverables.

III. Change the incentive structure to reward more risk-taking and quicker decisions.

To move faster and innovate more effectively, including in collaboration with the private sector, the incentive structure for acquisitions at DoD must change. Personnel are largely rewarded for taking familiar products and making them marginally better, as well as sticking with existing vendors and the proven status quo approach to acquisition. That kind of incremental innovation is not going to keep pace with our adversaries.

Acknowledging this problem is not new. In 2015, General Mark Milley, then the Army Chief of Staff, said that the Army has become "over-centralized, overly bureaucratic, and overly risk-averse." The same could be said for the other services, the joint staff, and the rest of DoD.

Risk-taking includes making faster decisions. It is important to pick the right winner, but if the decision-making process is too slow, it makes the winning capability moot. If the DoD delivers a capability that was the right choice at the time but takes ten years to deliver, then it almost certainly becomes the wrong capability at delivery because the world has passed it by.

Risk-taking requires a new tolerance for failure, just as there is in the private sector. Failing fast should be incentivized, so that new options can be tried quickly and discarded in order to find innovative approaches that work. Personnel should be publicly commended for prioritizing capabilities that will make the greatest difference and for choosing winners, even if they do not all achieve their desired outcomes. Evaluation reports should have specific categories for speed, creativity, and transformative solutions. Monetary incentives and accelerated promotion should be provided to those that dramatically improve or even revolutionize the status quo.

IV. Make transformative leaps in specific areas to keep up with revolutionary technological change.

Revolutionary technological change permeates every area of DoD's operation, but a few specific technologies the Department should focus on in the short-term include sensors, unmanned systems, artificial intelligence, and software systems.

- Sensors: In the near future, sensors will be everywhere: land, air, sea, and space. Stealth will become much more difficult or impossible. The better, real-time data a military leader has, the more informed decisions he or she can make on the battlefield. If DoD can get sensors—and the fusion of the data they provide—right, then it can get actionable information into the battle management system and into the hands of the warfighter. Having access to more granular and actionable information than an adversary has always been critical to military victories and will only become more so as both sides have the ability to acquire, process, and deliver more data more rapidly in this century.

- Unmanned Systems: DoD has to move faster on unmanned systems. Building a machine that has to keep a human alive is more expensive and slower than one that does not. While the technology may not be all the way there yet, the future is thousands of relatively cheap UAVs battling it out to control the airspace, not $400+ billion manned fighter jets. The same principle applies to the Navy and its fleet as well as the Army and its tanks. The sooner all the services incorporate this reality, the less they will throw good money after bad.

- AI: The DoD is falling woefully short on applying AI to its systems and processes across the board. From streamlining logistics to improving weapons targeting, AI can be a force multiplier and solve major DoD problems right now, but DoD does not have the right people on this technology. Worse still, it has no strategy to solve either problem. Internal systems must be valued just as much as the hardware that they support.

- Software Systems: DoD must establish a system where it can continually deploy software and its updates. DoD's software modernization strategy (published February 2022) has the right goals, but DoD has a lot of work to do to make sure this is not just another strategy without clear implementation. As Deputy Secretary of Defense Kathleen H. Hicks put it, "Transforming software delivery times from years to minutes will require significant change to our processes, policies, workforce and technology." Whereas industry practices recommend software delivery as frequently as every 2 to 6 weeks, a GAO study found that of the 39 weapons programs that reported using a modern software

development approach, only six met that standard. In fact, another six of those 39 programs took more than a year.

V. Congress should give the DoD more flexibility by raising reprogramming caps and reforming the "use it or lose it" policy.

Reprogramming is important because it allows DoD to move money to higher priorities if lower-priority missions can be executed with fewer resources. Typically, Congress resists the DoD using money for a purpose other than for which Congress appropriated it. However, congressional restrictions on reprogramming have constricted over time. As a percentage of the individual title outlays, between 1963 and 2018, the RDT&E reprogramming threshold (i.e., the threshold under which DoD can unilaterally reprogram funds) failed to keep up with inflation or defense budget growth, falling by half. The practical effect has been delayed programs, program offices that make the best of an obsolete plan to avoid the complicated effort of reprogramming, and inundating Congress with so much information that it is more difficult to focus on the largest and most critical programs. Congress should incrementally raise below-threshold reprogramming (BTR) caps, starting by increasing it to inflation-adjusted FY1982 levels with an annual report on how reprogrammed money under the new threshold was spent. Should no problems arise, Congress should raise BTR caps again to inflation-adjusted FY1963 levels to better align with the original intent of the reprogramming process. Besides Congress, DoD also has work to do on its end. Even for requests below the current threshold, there are up to 12 layers of approval within the DoD for reprogramming in order to ensure DoD is complying with Congressional direction. DoD needs to streamline this process by re-evaluating each layer and cutting any redundancies.

Every dollar matters and the "use it or lose it" policy wastes money. Because programs cannot keep what they save at the end of any fiscal year, there is a perverse incentive for them to spend it on unnecessary expenses. The incentive structure must be changed to reward managers who spend appropriately. Congress should test out allowing a small percentage of each program's budget to be carried over into the next fiscal year. If the authority is used appropriately, Congress should consider raising the percentage. Appropriators and DoD should also rethink how to better use the Defense Modernization Account (10 U.S. Code § 2216), an account first authorized in 1996 for DoD to transfer program savings to then use for modernization. The account has been historically underused due to DoD not identifying savings to put into the account and appropriators discouraging its use.

VI. Congress should appropriate DoD dollars on time.

Yet another challenge preventing rapid innovation within DoD is Congress's failure to fund DoD programs on a timely basis. The consistent use of continuing resolutions to fund DOD and other parts of the government dramatically shortens the time DoD has to implement new programs, causing it to lurch year to year between different funding and implementation cycles. Congress has enacted one or more CRs in all but three of the 44 fiscal years since FY1977. Even worse, from FY1998 to FY2020, Congress provided funding by means of a CR for an average of almost five months (140 days) each fiscal year. While in some of those years, Congress passed the DoD

appropriations bill on time so the CR did not apply to DoD, that was the exception and not the rule. Forcing DoD to delay new starts by nearly half a year is an unforced error by our own political system, needlessly delaying modernization. However, past does not have to be prologue. Members should recognize that this new era of revolutionary military advancement demands that, at a minimum, Congress no longer resort to CRs to fund DoD.

The challenge ahead is large but not insurmountable. The United States is still the most innovative country in the world, but the Executive and Legislative branches have to work together to tap into that innovation and bring it to bear on our adversaries. This means drastic cultural, bureaucratic, and legislative change. We have to speed up both hardware and software acquisition and updates, make it easier for non-traditional defense companies to do business with DoD, be willing to tolerate more risk in exchange for speed and innovation, and improve the reporting process. We are in a new era and must adapt and lead by employing rapid innovation to get ahead of our adversaries. If we remain entrenched in our old ways, we will inevitably fall behind these adversaries who are pouring tremendous amounts of time, money, and human capital into getting ahead of us.

This paper is a product of the Forum for American Leadership's Technology and Innovation Working Group.

The Forum for American Leadership (FAL) is a non-profit organization that presents expert analysis and national security recommendations to policymakers in Congress and the Executive Branch.