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# Is the Defense Acquisition System Postured to Solve National Defense Strategy Operational Problems?

**T**he U.S. Department of Defense (DoD)'s acquisition system has undergone significant reform in recent years, starting in 2016 with implementation that has continued through 2020 as part of efforts to address historical acquisition program failures and concerns that the acquisition system is not pacing the threats identified in the 2018 National Defense Strategy

(NDS). How should DoD assess the outcome of those reforms?

The premise of this report is that the performance of the defense acquisition system (DAS) should be assessed relative to its ability to cost-effectively develop and produce capabilities that deter and defeat adversary aggression. More specifically, the DAS should be assessed by the extent to which its policies, processes, and personnel, and its major partners in industry, are efficiently and effectively developing and producing the systems that overcome the operational problems outlined in the NDS. While it is easy to suggest, this approach has relatively profound implications for acquisition oversight because it differs in key ways from a more familiar paradigm of measuring the health of the DAS according to

## KEY FINDINGS

- The defense acquisition system (DAS) should be able to cost-effectively develop and produce systems that support capabilities that overcome the operational problems outlined in the National Defense Strategy (NDS).
- The DAS should prioritize a set of discrete operational problems; survey and select from the joint community a set of operational concepts that could solve the problems; identify enabling programs for the selected operational concepts; identify, monitor, and manage the risks for the selected programs; and assess the overall health of the DAS by its ability to deliver the capabilities to solve the operational problems.
- To achieve this goal, we recommend that the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD [A&S]) engage the Department's force planning and development apparatus to clarify and elaborate the role of the DAS in solving NDS operational problems; develop and institutionalize a mechanism to inform OUSD (A&S) leadership and staff about emerging operational and solution concepts as a forum to explore adaptations of acquisition policy and to bridge the force development and acquisition communities; and conduct a prototype of this approach to experiment with this concept and develop an understanding of the opportunities and limitations beyond those explored in this report.

the cost, schedule, and performance of major defense acquisition programs (MDAPs).

We propose a new paradigm in which DoD leaders manage the acquisition of weapons and other systems according to their potential to develop and produce capabilities that solve NDS operational problems. We also argue why this report is warranted, and we suggest some steps that the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD [A&S]) might take if it wishes to pursue this approach.

## Assessing the Health of the DAS

The ultimate goal of the DAS is to develop and produce forces and capabilities to deter and defeat adversary aggression in support of the NDS. Achieving this goal depends on the following factors beyond the DAS:

- strategy and defense planning guidance
- warfighting requirements that are set by warfighters and validated by the Joint Staff
- academic research and commercial technologies that can be leveraged by defense programs
- integrated concepts of operations (CONOPS) from the force development community
- resources allocated in the budget process by the services, approved by the Secretary of

Defense, and authorized and appropriated by Congress

- the adversary's response to all of the above.

Thus, the health or performance of the DAS cannot truly be assessed relative to its ultimate goal of delivering effective military capabilities, because the DAS alone does not have authority over all of these pieces of the process. Given this challenge, acquisition professionals conventionally resort to variants on measures of the cost, schedule, and performance of programs. In such a simple world, the warfighters can write down their requirements and the programmers can allocate a funding stream; the DAS can then agree to realistic cost and schedule targets, execute, and be held to those targets.

Historically, the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (OUSD [AT&L]) was responsible for major acquisition programs, but that office was dissolved in 2018 and replaced with two new organizations—OUSD (A&S) and the Office of the Under Secretary of Defense for Research and Engineering (OUSD [R&D]). Although the organizational structure has changed, DoD has continued to group and manage acquisition programs by dollar value and to apply different levels of oversight depending on that value. This practice generally leads to a focus on MDAPs, for which both

### Abbreviations

ACAT	Acquisition Category
CAPE	Office of Cost Assessment and Program Evaluation
COCOM	combatant command
CONOPS	concepts of operations
DAE	Defense Acquisition Executive
DARPA	Defense Advanced Research Projects Agency
DAS	defense acquisition system
DoD	U.S. Department of Defense
MDAP	major defense acquisition program
MDO	multi-domain operations
NDS	National Defense Strategy
OSD	Office of the Secretary of Defense
OUSD (A&S)	Office of the Under Secretary of Defense for Acquisition and Sustainment
OUSD (AT&L)	Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics
OUSD (P)	Office of the Under Secretary of Defense for Policy
OUSD (R&D)	Office of the Under Secretary of Defense for Research and Engineering
R&E	Research and Engineering

current and longitudinal data are most plentiful. DoD reports on acquisition performance produced between 2013 and 2016 (known as *Performance of the DAS* reports) as well as research conducted between 2016 and 2019 by DoD’s Advisory Panel on Streamlining and Codifying Acquisition Regulations (the Section 809 Panel) substantiate the utility of this approach. But cost, schedule, and performance outcomes are, in general, lagging indicators, and MDAPs are only part of the DAS.

The world is moving fast, and it is not easy to develop an acquisition system that accommodates it. Acquisition reforms, such as Middle Tier Acquisition—which is used to rapidly develop fieldable prototypes within an acquisition program—as well as DoD efforts to delegate acquisition authority to lower levels, are designed to accelerate the deployment of capabilities to the warfighter to meet the requirements of the NDS. However, those same efforts make oversight and assessment of the DAS even harder. Not only are cost, schedule, and performance data less available, but program risks (technical, system integration, design, production, business, etc.) are less transparent to leadership. To varying degrees, DoD acquisition policies, processes, and program managers take many of these risks into account. However, it does not appear that the acquisition system gives similar attention to the ultimate strategic risk: exposure to the chance that the acquisition system will not develop and produce capabilities that ultimately support the NDS.

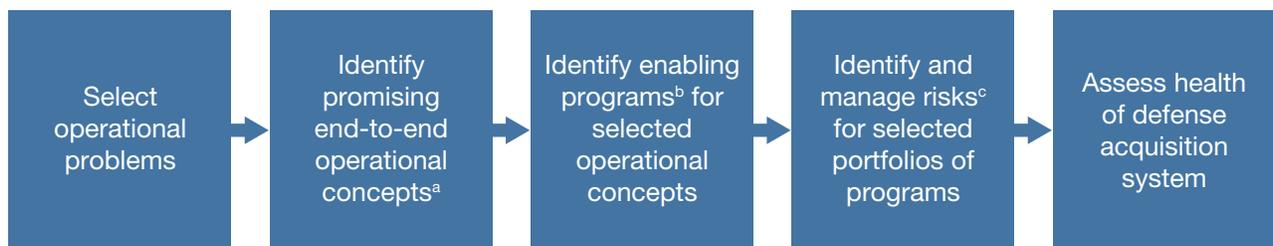
## A New Paradigm: Manage the DAS Relative to Operational Problems and Emerging CONOPS

We propose a new paradigm in which DoD leaders would manage the acquisition of weapons and other systems according to the risk and focus on developing and producing capabilities that solve NDS operational problems.

As envisioned, this approach would entail the following components (see Figure 1):

- First, prioritize a set of operational problems. The NDS offers such guidance, and Ochmanek derives a set of seven operational problems and two cross-cutting challenges, some of which are summarized in the next section (Ochmanek, 2018).
- Second, for prioritized problems, identify a small number of promising end-to-end operational concepts from across the joint force. The end-to-end concepts may emerge from the services, Defense Advanced Research Projects Agency (DARPA), or the combatant commands (COCOMs). The prioritized set of concepts most likely would need to be developed in coordination with other Office of the Secretary of Defense (OSD) components, the Joint Staff, and the services.
- Third, for each end-to-end operational concept, identify a set of programs—irrespective of their dollar value or Acquisition Category (ACAT) status—that could be relevant to

FIGURE 1  
Manage the DAS Relative to Operational Problems and Emerging CONOPS



<sup>a</sup> We identified concepts for selected operational problems.

<sup>b</sup> Enabling programs were identified irrespective of dollar value.

<sup>c</sup> Technical, design, integration, production, and business risks were identified.

enabling each concept. This step may need to be coordinated across the services.

- Fourth, identify and manage risks—technical, design, production, integration, and business—for the identified programs. These risks, if not addressed early, cause cost growth, schedule slippage, and performance shortfalls.
- Fifth, on a periodic basis, assess the overall performance of the DAS enterprise according to the cost, schedule, and performance outcomes of programs identified to implement the emerging operational concepts.

DAS leadership (e.g., the Under Secretary of Defense for Acquisition and Sustainment) is likely to have a supporting role in the execution of steps one, two, and three and a lead role in steps four and five, working with the COCOMs, Joint Staff, Office of the Under Secretary of Defense for Policy (OUSD [P]), the Office of Cost Assessment and Program Evaluation (CAPE), and the military departments. An important aspect of the concept is delineating and differentiating the roles of each of these offices. Unlike much of CAPE's program evaluation work, this is not about defense-wide resource allocation. On the other hand, program risks that emerge from cost estimates would certainly feed the process. OUSD (P) strategy drives the operational problems on which the process is based. The Joint Staff develops CONOPS and interfaces with warfighters working on them, and that process leads to the requirements that Joint Staff approves; the CONOPS are the potential solutions to operational problems and often depend on fielding new technology. The military Defense Acquisition Executives (DAEs) can certainly employ similar approaches, but the authors are focused on multi-domain concepts that span the whole DAS. The OUSD (A&S) emphasis is on the fourth and fifth elements, managing program risks across the DAS enterprise and strengthening the system's ability to deliver to the warfighter.

In the remainder of this report, we further expand on what we mean by NDS operational problems, list a few innovative CONOPS or organizations working on them, and provide an example to suggest our concept's utility. We conclude with an assessment

of the challenges and suggestions for moving forward with the approach.

## **Return to Strategic Competition, NDS Operational Problems, and Emerging CONOPS**

The NDS heralds the return to strategic competition following the erosion of the dominance enjoyed by the U.S. military in the post–Cold War era. Possibly more than the decline of any particular capability advantage, the long-standing U.S. approach to power projection has been undermined by adversaries that are fielding military capabilities to deny U.S. access to theaters of operation at the onset of hostilities; challenging U.S. dominance in the opening phases of conflict; holding traditional areas of sanctuary at risk; and thereby creating a window of opportunity to unleash aggression. Ochmanek, 2018, offers five operational problems and two cross-cutting challenges that, collectively, represent the capability gaps that most need to be addressed. Ochmanek's five challenges are as follows:

1. Delay, damage, and destroy mechanized ground forces in contested environments.
2. Locate, identify, and damage or destroy surface naval vessels in contested environments.
3. Rapidly suppress and destroy advanced integrated air defenses.
4. Enhance base resilience: Generate and sustain combat power from land and sea bases, both inside and outside contested environments.
5. Prevent North Korea from attacking targets outside its borders with nuclear weapons.

In addition to these “scenario-specific” challenges, Ochmanek offers the following two cross-cutting challenges:

1. Provide resilient command, control, communications, and positioning, navigation, and timing (PNT) services to joint forces in contested environments that pose cyber, electronic attack, antisatellite, and other threats.
2. Provide transportation, resupply, maintenance, and other elements of logistics support to joint forces in contested environments.

In light of these operational problems, services and joint force development research communities are exploring a variety of new operational and technological concepts with the potential to restore the United States' eroding power projection capabilities. A thorough review of these developments is beyond the scope of this report, but we discuss some examples in the following sections.

**Multi-domain battle or multi-domain operations** (MDO) (Gouré, 2019; U.S. Army Training and Doctrine Command Pamphlet 525-3-1, 2018; McCullough, 2018). In recent years, the Army and Air Force have initiated a concept development activity centered on the idea of multi-domain battle or MDO, which has more recently evolved to a framing based on the concept of Joint All-Domain Command and Control. The ideas underlying this multi-domain concept remain somewhat nascent, and despite early collaborations between Air Combat Command and U.S. Army Training and Doctrine Command, the services' visions are not fully aligned. However, two tenets of these concepts appear evident. First, whereas the post-Cold War approach to power projection relied on a division of labor in which the services collaborated at the operational level, MDO concepts aspire to more-sophisticated joint interactions at the engagement or tactical level. Second, MDO envisions tighter integration of kinetic and nonkinetic effects (e.g., synchronizing actions in the cyber, space, or electromagnetic domains) to create windows of opportunity when synchronized with long-range fires. This also foreshadows more joint interaction, insofar as cyber, space, and the electromagnetic spectrum are "commons" shared by all the services.

**DARPA mosaic** (DARPA, undated). The DARPA vision for mosaic warfare envisions taking systems of systems to another level. In contrast to a conventional approach that features monolithic platforms and kill chains that aggregate capabilities onto small numbers of relatively exquisite platforms, a mosaic will feature networks of heterogeneous platforms with fractionated capabilities that are dynamically composed on tactical timelines according to assigned objectives. Like MDO, mosaic envisions more jointness because platforms that compose a mosaic may not adhere to

service boundaries. But mosaic goes beyond MDO to propose a particular technology solution concept.

**Air Force Warfighting Integration Capability** (AFWIC) (Mayfield, 2019). The AFWIC is working to define and evaluate innovative joint CONOPS for defeating aggression in highly contested environments. Early work has identified opportunities to exploit small attritable unmanned aerial vehicles (UAVs), along with artificial intelligence (AI) and autonomy, to create an intelligence, surveillance, and reconnaissance (ISR) and sensing grid that can function even when communication links to command and control (C2) centers are severed. The attritable aircraft also make it possible to generate and sustain situational awareness and combat power with less reliance than traditional manned and unmanned aircraft on vulnerable fixed infrastructure, such as air bases and runways. AFWIC is also conducting exploratory work on advanced munitions (including nonkinetic weapons), means for employing combat power through and from space, and new concepts for aerial refueling and logistics under attack.

**Proliferated Low Earth Orbit Satellites** (PLEO) (Albon, 2019). Offices within DoD have proposed leveraging new space technologies to design constellations of large numbers of small, inexpensive, short-life low earth orbit satellites for future space architectures. The approach (referred to as PLEO), if properly executed, would provide a more resilient space system than the traditional space constellations of a handful of large satellites. Valuable mission advantages can include better global coverage, higher revisit rates, stereo coverage, and more-frequent opportunities for technology refresh—characteristics needed to address increasing military challenges and operate in an evolving hostile space environment. A PLEO-type program would provide some potential acquisition advantages. However, such a program would also create new challenges, such as the need to evolve the traditional acquisition model (e.g., a multi-year budget profile extending through the life of the constellation).

## An Illustrative Example

Consider an example to make this modestly more concrete. We envision a scenario in which, on the basis of the NDS and consultation with the Secretary of Defense, the DAE selects the operational problem “delay, damage, destroy mechanized ground forces in contested environments” as a priority for the DAS. For this operational problem, the Joint Staff, OSD, and relevant COCOMs identify MDO and mosaic as two emerging operational concepts that could be solutions. They also identify a specific suite of programs that could together solve the problem: an Air Force sensor developed as a Middle-Tier prototype to be integrated on an MDAP platform, an Army munition developed as an ACAT-II program, and a joint data link to link the two. The DAE selects this portfolio of programs for acquisition oversight.

The DAE conducts a periodic review of this portfolio and discovers that

- the Air Force sensor prototype is delayed because of realized risks integrating the sensor onto the MDAP
- the Army munition is on cost and schedule but is less effective than the requirement because of an inability to retire certain technical risks
- the threat has evolved jammers to degrade the joint data link
- a breakthrough DARPA electronic warfare payload could increase the survivability of both the MDAP platform and the munition, if integrated.

During the portfolio review, the DAE is presented with options: accelerate the Air Force sensor integration; accept a delay in the Army munition program to improve its performance; approve a cost increase to develop countermeasures for the joint data link; and integrate the DARPA electronic warfare payload. Obviously, the decision on each of these programs depends on an integrated joint analysis across all of them. On the basis of such an analysis, the DAE makes a recommendation to synchronize programs to the Secretary or Deputy Secretary of Defense.

## Is the New Paradigm Advantageous? Is It Viable?

This approach comes with several advantages. First, it would associate acquisition oversight with strategic outcomes. The acquisition review process would be linked to warfighting needs and outcomes. Next, it would provide natural metrics for performance above the individual program level. Although cost, schedule, performance, and risk would retain their importance, the “wholeness” of the set of programs would become more important, because it is that wholeness that is most important to the warfighter.

However, there are several implementation challenges. First, the concept requires OUSD (A&S) to be aware of operational and technology concepts coming down the force development pipeline. Traditional acquisition programs have been criticized for their inflexibility and inability to incorporate changing requirements and new technologies. Some of the information flows to OUSD (A&S) from OUSD (R&E), OUSD (Intelligence and Security), DARPA, the Strategic Capabilities Office, and the Missile Defense Agency will become more important, as will contact with the Joint Staff and combatant commanders. It may be necessary to bolster information flows between acquisition and force development communities.

Second, the concept may require OUSD (A&S) to reassert acquisition authority to conduct oversight and improve outcomes. Such concepts as MDO and mosaic herald more jointness, while the delegation of milestone decision authority encourages service independence. OUSD (A&S) will need to maintain oversight of the highest-priority operational problems, end-to-end operational concepts, and the supporting programs. This will require refocusing OSD oversight, not necessarily increasing it. Traditionally, OUSD (A&S) focused on MDAPs over which it had milestone decision authority. However, non-MDAPs, Middle Tier efforts, and sustainment programs will also be an important part of this review construct. The military services will need to provide the necessary information on those programs that are associated with an operational problem, but this is not a blanket call for detailed reporting on all

ACAT II/IIIs, Middle Tier Acquisitions, or sustainment initiatives.

Third, the process will require some joint analytics capability to identify the most-promising operational concepts and the underlying programs. The atrophy of enterprise analytics has been noted elsewhere (see Davis, 2016; and Ochmanek, 2018), and historically, the analytic capability has resided in CAPE, the Office of Net Assessment, OUSD (P), or the Joint Staff—not in the former OUSD (AT&L). OUSD (A&S) may need to invest in organic analytic capability or establish new or stronger relationships with those components.

## Next Steps

Managing the acquisition system relative to NDS operational problems is easy to envision but perhaps harder to do. We suggest several next steps.

First, we recommend OUSD (A&S) engage the DoD's force planning and development apparatus, which is currently under reorganization by OUSD (P), CAPE, and the Joint Staff. The former OUSD (AT&L) did not have a prominent role in what was formally known as the Support for Strategic Analysis. But a larger role for OUSD (A&S) in new processes would clarify and elaborate the role of the DAS in solving NDS operational problems and bolster information flows that may have been reduced with the reorganization of OUSD (AT&L).

Second, we recommend OUSD (A&S) develop and institutionalize a mechanism to inform OUSD (A&S) leadership and staff on emerging operational and solution concepts. In principle, this mechanism should substitute for information flows that previously may have been organic to a consolidated OUSD (AT&L). Initially, the goal of the mechanism may be to develop situational awareness. Over the longer term, the mechanism could provide a forum to explore adaptations of acquisition policy. These steps could help bridge the force development and acquisition communities.

Third, we recommend OUSD (A&S) conduct a prototype of this approach to experiment with this concept in order to understand the opportunities and limitations beyond what we have presented here. A

tabletop exercise with experienced acquisition professionals may be useful. Such a prototype or exercise could identify the nature of the tasks that would be required of OUSD (A&S) and how OUSD (A&S) should be organized to perform the new functions.

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## **About This Report**

The U.S. Department of Defense (DoD)'s acquisition system has undergone significant reform. The authors of this report propose that DoD leaders manage the defense acquisition system (DAS) according to its ability to develop and produce capabilities that solve operational problems outlined in the 2018 National Defense Strategy, discuss why this perspective is warranted, and suggest steps that the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD [A&S]) could take if it wishes to pursue this approach.

The research reported here was completed in April 2020 and underwent security review with the sponsor and the Defense Office of Prepublication and Security Review before public release.

This research was sponsored by the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, Acquisition Resources and Analysis Directorate and conducted within the Acquisition and Technology Policy Center of the RAND National Security Research Division (NSRD), which operates the RAND National Defense Research Institute (NDRI), a federally funded research and development center (FFRDC) sponsored by the Office of the Secretary of Defense, the Joint Staff, the Unified Combatant Commands, the Navy, the Marine Corps, the defense agencies, and the defense intelligence enterprise.

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