Recommendation 39: Leverage a portfolio structure for requirements.

Problem

DoD's requirements system is under-resourced and lacks the speed, agility, and innovative approaches needed to effectively exploit leading technologies for military advantage. DoD's requirements processes, including implementation of JCIDS policies, contribute to lengthy development timelines, limited flexibility, and stove-piped systems. Although this process is important for CCMDs to provide joint warfighting priorities, the lengthy series of system-centric analyses, requirements documents, and reviews can limit innovation and interoperability by prematurely defining and constraining requirements.

Software is a driving force for most weapon system advancements, yet the requirements structure inhibits adoption of leading software development practices (e.g., Agile and DevOps). While offering some flexibility for software, programs are expected to define requirements at the start and obtain approvals from senior leaders. Agile and related methodologies dispel the myth that software programs must define requirements upfront, when the program has the least knowledge about user needs and the target solution. Commercial organizations develop software iteratively, with dynamic scope and requirements based on user feedback, interim performance, and shifting priorities.

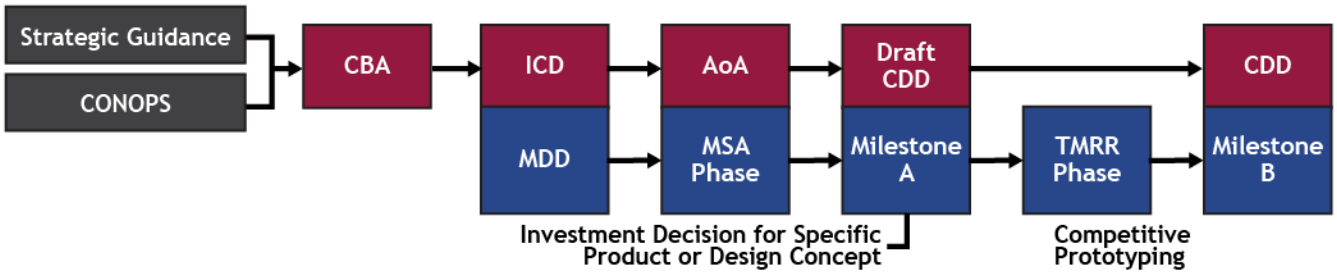
Recent DoD reform efforts have focused on streamlining coordination timelines for JCIDS requirements documents. These reforms fail to address the bigger issue of breaking down large, stove-piped programs from the start. DoD needs many small and midsized capabilities to complement and connect the major systems.

Background

JCIDS provides a critical and systematic process for incorporating CCMD inputs on capability gaps, operational requirements and funding priorities within constrained budgets. It has a portfolio structure based on functional capability areas, each with an FCB. JCS reviews ensure cross-Military Service issues are adequately addressed and limit duplicative requirements among the Military Services. JCS further validates requirements for critical areas to include communications, logistics, and cybersecurity. JCIDS also ensures nonmateriel aspects (e.g., doctrine, training, personnel) are aligned to maximize mission impact.

As shown in Figure 2-10, DoD strategic guidance and CONOPSs for the operational mission area drive a capabilities-based assessment (CBA). CONOPs often reflect a culture that identifies traditional, Military Service-specific capabilities. When a CONOP outlines a to-be state, it often lacks sufficient evidence-based analysis. These issues can preordain a biased Military Service solution or a technologically infeasible solution. Initial analysis takes place during the CBA and leads to development of one or more ICDs. The ICD serves as a key entrance criterion to the acquisition process at the materiel development decision.

Figure 2-10. Interaction of JCIDS Documents and Early Acquisition Lifecycle



Programs conduct an analysis of alternatives (AoA) and related analyses during the Materiel Solution Analysis (MSA) Phase to prepare for Milestone A, which, as outlined in DoDI 5000.02, is an "investment decision to pursue specific product or design concepts." Even at this early stage, programs will already have made some crucial decisions about the nature of the solution.[1] Many of these decisions are very important for ensuring joint warfighting success, but some may be unnecessarily restrictive. A draft Capability Development Document (CDD), with several mandatory and program-unique KPPs, is required for Milestone A approval.[2] KPPs can help constrain program costs and limit requirements creep in later phases, yet they can also restrict the solution trade space. Milestone A authorizes the program to advance to the Technology Maturation and Risk Reduction (TMRR) Phase: the point at which the procuring agency can engage industry and contract for competitive prototyping to reduce risk in the selected materiel solution. Typically, the Request for Proposal (RFP) for technology maturation or risk reduction either suggests or clearly identifies the preferred solution with detailed specifications and technical requirements. Because programs perceive urgency to complete the CDD and enter the development phase, the insights gained from risk reduction prototypes often come too late to effectively shape the CDD. These early commitments to a solution may serve to overly constrain innovative options.

The JROC or the Military Services' requirements council must approve the final CDD before a program can release the RFP for system development. A 2015 GAO report indicated that completing a CDD takes, on average, 24 months—the longest timeframe of all the program documentation the GAO reviewed.[3] Lengthy AoAs, conducted in parallel with the CDD development, contribute to these timelines. The CDD sets the scope of a major program for a decade or longer of development, testing, and production. During this timeframe, changes occur constantly across operations, threats, priorities, budgets, technologies, and related systems; however, unless the Military Service wants to use the update process, the requirements remain fixed. Updates are reviewed and approved by a configuration steering board (CSB) chaired by the SAE, with membership consisting of executives from the relevant

[1] "Failures of Imagination: The Military's Biggest Acquisition Challenge," Jarrett Lane and Michelle Johnson, *War on the Rocks,* April 3, 2018, accessed December 30, 2018, https://warontherocks.com/2018/04/failures-of-imagination-the-militarys-biggest-acquisition-challenge/.
[2] "Key Performance Parameters (KPPs)," DAU Acquipedia, accessed December 30, 2018, https://www.dau.mil/acquipedia/pages/articledetails.aspx#!346.
[3] GAO, *Acquisition Reform: DOD Should Streamline Its Decision-Making Process for Weapon Systems to Reduce Inefficiencies, GAO-15-192,* February 2015, accessed December 30, 2018, https://www.gao.gov/assets/670/668629.pdf.

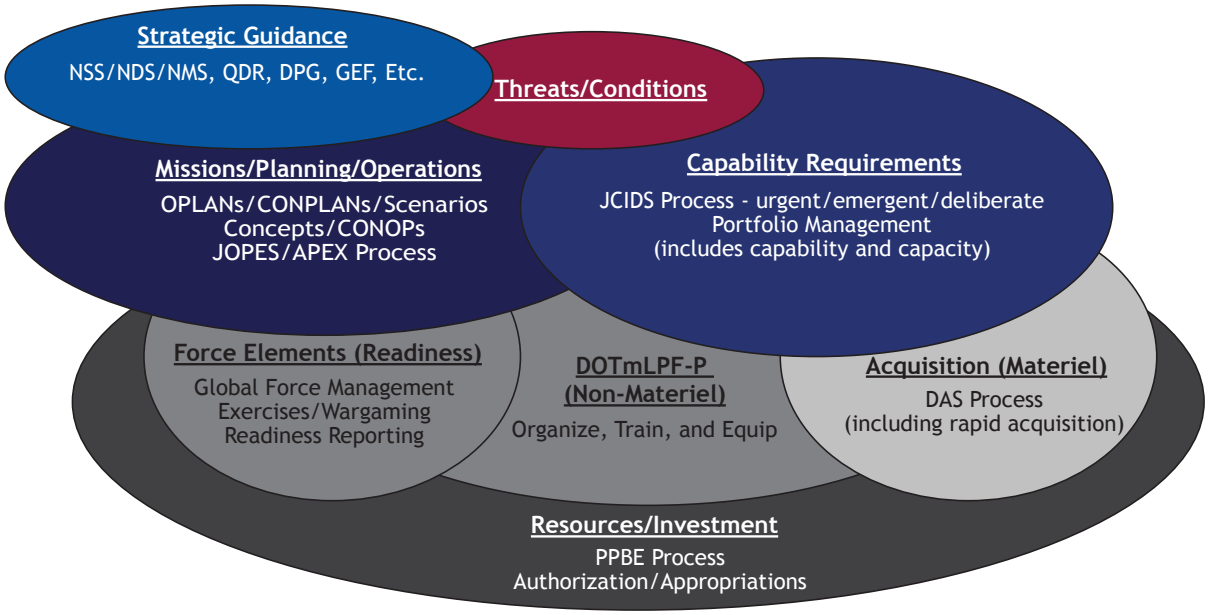
Military Service, OSD, and JCS. Often, the lack of knowledge about requirements processes hinders and lengthens each step's completion.

Realizing that subsequent increments or programs may follow many years later, operational sponsors are incentivized to include most known requirements in the current CDD. This practice compounds risk by expanding the program scope, the number of critical technologies to mature, and variances in estimates. These compounded risks drive longer timelines and higher costs to achieve the target system's initial operational capability (IOC). JCIDS does have fast track lanes for urgent operational needs (UONs) that affect an ongoing contingency operation and Joint emergent operational needs (JEONs) that affect an anticipated contingency operation. The CCMDs, the CJCS, and the VCJCS identify joint UONs and JEONs, while the Military Services may also identify UONs. The JCIDS manual outlines staffing timelines of 15 days for UONs and 31 days for JEONs, whereas the traditional deliberate planning timeline is 97 days. DoDI 5000.02 states these capabilities must be fielded in less than 2 years.

During development, PMs may discover that the program has experienced major operational and threat changes, technology maturity or performance issues, budget changes, or other disruptive factors. ACAT I and IA programs must convene a CSB at least annually to review all requirements changes, significant technical configuration changes, and descoping options to reduce costs or respond to emerging threats. The CSB reviews and may recommend changes to the requirements authority.

As highlighted in Figure 2-11, the JCIDS process of coordinating the major capability requirements documents is just one part of the broader DoD requirements processes. Strategic guidance (e.g., NSS and NDS) provides DoD an overarching framework of objectives and priorities to shape operations, requirements, and investments. The missions, planning, and operations function includes operational plans and CONOPS that articulate operational capabilities and how an organization plans to accomplish its missions. In force elements, the Military Services and Combat Support Agencies organize, train, and equip materiel and nonmateriel solutions to provide forces to the CCMDs. Although DoD's requirements processes interface with the acquisition and budgeting processes, tighter alignment is critically needed for more efficient and effective solution deliveries. DoD needs to examine the requirements processes holistically, beyond JCIDS boards and documentation reviews (along with aligning with budget, acquisition, and sustainment) for greater speed, agility, and innovation for mission impact.

Figure 2-11. Requirements Process Interactions[4]



Discussion

Problems with DoD's Requirements Processes

The lengthy analysis and documentation procedures involved in JCIDS are designed to set requirements for billion-dollar platforms that will operate for several decades. Three to 5 years may elapse from the time an operational commander initially identifies a capability need to when a CDD is approved. The only other pathway currently available is an *express lane* for meeting urgent or emerging operational needs. Military Services' implementation of Middle Tier Acquisition outlined in Section 804 of the 2016 NDAA includes the Service Chief approving requirements, which appears excessive for a rapid prototyping project. DoD needs many intermediate pathways to provide *just enough* analysis and requirements documentation for midsized systems, with lifespans under a decade, that can be iteratively upgraded by subsequent releases. This situation calls for a set of processes that can exploit mature, leading technologies for military capabilities today by establishing an architecture that can integrate emerging technologies tomorrow. For example, a fifth-generation fighter requires different rigor in documentation than a small, command-and-control IT solution. F-35 software upgrades (and fixes to critical safety or operational issues) require a different approach than the initial CDD for the program. A program that relies heavily on COTS solution requires a different approach than a new development program with maturing technologies. Acquiring IT as a service is different from tailoring a COTS solution or developing new software development.

The Requirements System Inhibits Contemporary Software Development Practices

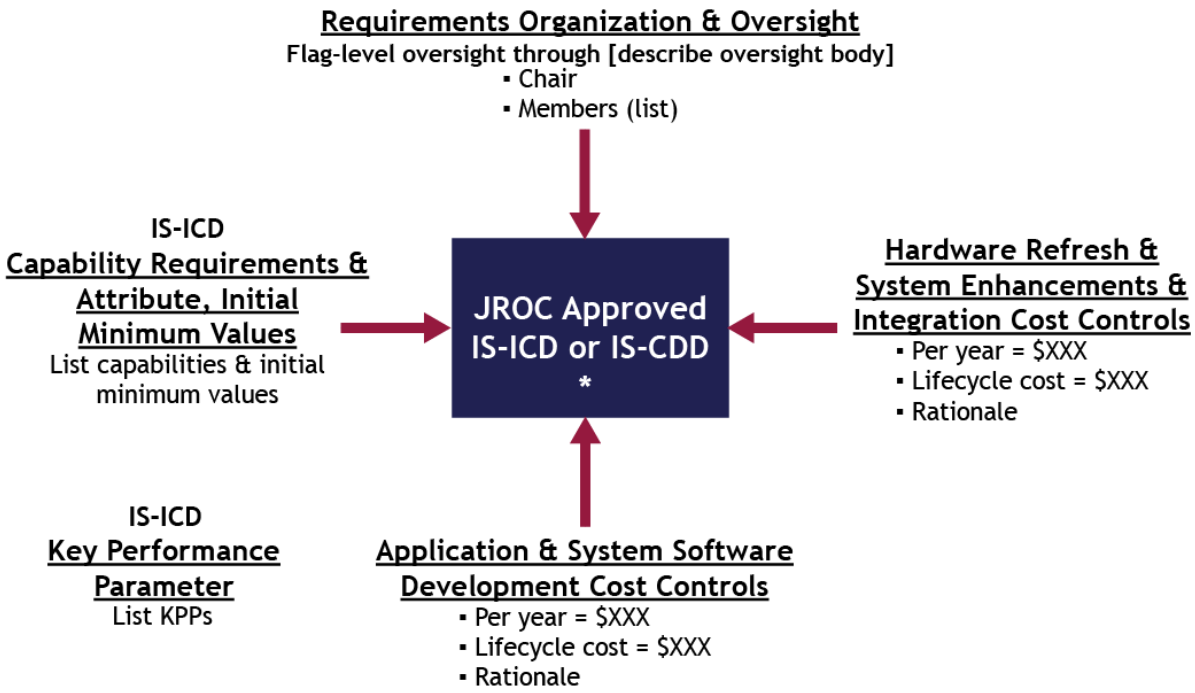
As shown in Figure 2-12, the IT Box model in the JCIDS manual was designed to enable flexibility in requirements for software development costing more than $15 million. The four sides of the IT Box

[4] Source: Joint Capabilities Integration and Development System (JCIDS) Manual of Operations.

represent a flag-level oversight requirements board, validated capabilities and initial measures of effectiveness, estimated software development and integration costs and estimated sustainment costs. JROC approves an information system variant of the ICD or CDD that defines these boundaries. Provided the program *stays within the box*, it does not require subsequent JROC approval or JCIDS documents. The program can iteratively define smaller requirements documents for approval by its flag-level requirements board.

Although the IT Box originally required programs to generate a high-level IS-ICD for the JROC to approve, the JROC has since designated the IS-CDD as the guiding document. Per discussions with JCS/J8, IS-CDDs can average 40 pages and require 2.5 months of staffing by the JCS (in addition to Military Service-level staffing) to receive JROC approval. The JCS envisions that programs will generate IS-CDDs for each major incremental development, not for an entire major system.

Figure 2-12. IT Box Primer



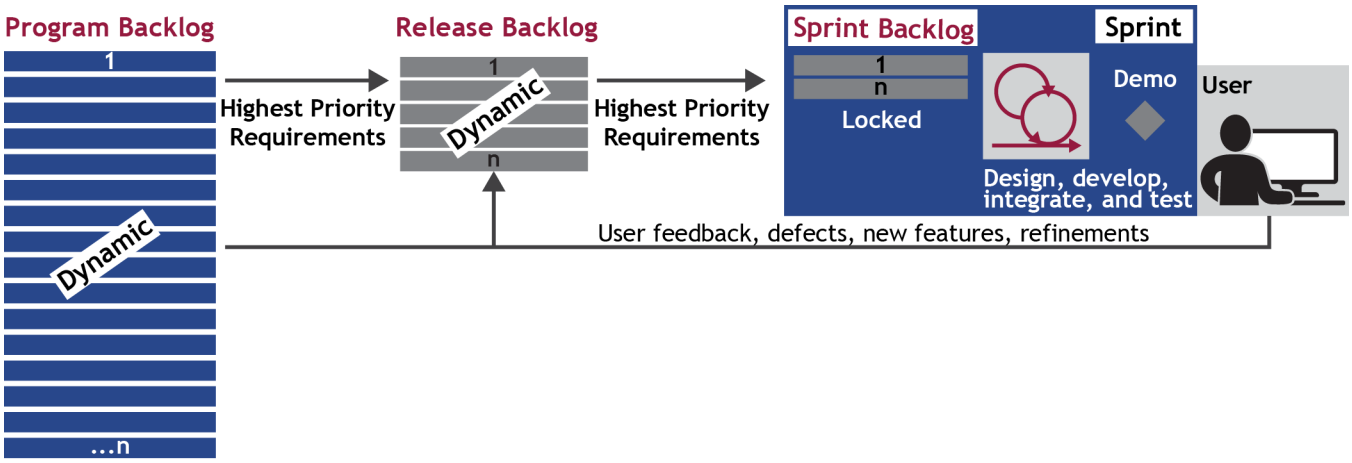
Source: Adapted from DAU graphic.

This approach is based on the fallacy that programs can effectively define the scope and requirements for a major software development effort upfront and bound the program by the estimated development and sustainment costs. By contrast, as noted previously, in leading software development practices—such as Agile and DevOps—users, acquirers, developers, and other stakeholders iteratively define, prioritize, and change program scope and requirements. They begin with a hypothesis of the desired functionality and iteratively build, test, and demonstrate capabilities in close coordination with users. Users and engineers provide feedback on interim developments to shape future iterations. A growing number of DoD software programs are embracing this model, with some notable successes achieved by

programs such as the Air Force's Air Operations Center Pathfinder program, which delivers higher-quality, lower-risk, secure software on a weekly release schedule to warfighters.[5]

Leading commercial corporations and start-ups apply Agile practices to manage software requirements via dynamic, prioritized backlogs of user stories. User stories capture the functionality the end users expect the software to deliver, often with a clear *definition of done* that serves as the acceptance criterion. A product owner collaborates with the stakeholders to prioritize the user stories on the product backlogs—the set of features for which software must be developed (see Figure 2-13). The highest priority features determine the scope of the next time-boxed release backlog. The development team commits to design, develop, integrate, test, and demonstrate working software for each sprint backlog to users and testers. Based on software performance and user feedback, product owners may make changes to the release and program backlogs to shape user stories and priorities.

Figure 2-13. Example of Agile Backlogs



Conclusions

Develop a Capstone Set of Requirements for Each Portfolio

Instead of producing a large set of system-centric requirements documents, the Military Services and Defense Agencies should develop a set of capstone requirements and related materials for each execution portfolio. These items would guide the iterative delivery of an integrated suite of capabilities to maximize operational impact.

The Military Service headquarters leadership, in collaboration with their respective Military Service Chiefs, operational commands, and JCS, should work to provide each execution portfolio with an integrated, capstone set of requirements and threat assessments (from the intelligence community). This approach would focus the JCS and Military Service Chiefs on the strategic operational

[5] "AOC Pathfinder is Saving USAF Big Money, and It Wants More of It," Air Force Magazine, February 22, 2018, accessed December 30, 2018, http://www.airforcemag.com/Features/Pages/2018/February%202018/AOC-Pathfinder-is-Saving-USAF-Big-Money-And-It-Wants-More-of-It.aspx.

requirements, while enabling portfolios to manage speed and agility of capability requirements for specific systems/programs at lower levels.

The capstone documents would include:

- **Enduring Enterprise Requirements (EERs):** Current and future operational requirements of the Military Services and CCMDs based on the relevant CONOPs. These would not be written at the system level or allocated to individual systems; ideally, they would be constrained to a few strategic themes to provide strategic direction.

- **Measures of Force Effectiveness (MOFEs):** Specific measures of how a force mix (a system of systems consisting of elements such as sensors, weapons, and communications systems) performs against the EERs. MOFEs represent the culmination of the Measures of Effect and Measures of Performance currently captured in ICDs and CDDs. This would impel the PAE to iteratively deliver capabilities to maximize performance against MOFEs, focusing investment on the highest mission impact.

- **Mission Threads, Kill/Effects Chains:** Representative vignettes that illustrate specific operational scenarios. The vignettes would expand upon the Mission Engineering work within OSD, JCS, and the Services to identify a series of effects chains and would focus investments to strengthen any *weak links* in the chain, holistic integration, and strategic outcomes.

The capstone requirements provide the PAE direction for shaping prototypes and experiments, the trade space for program requirements, and resources to maximize mission impact. Ideally, capability requirement documents for programs would be iteratively developed and approved at lower levels (within the Military Services' corporate structure) to focus on more detailed, specific needs. KPPs for MDAPs would still be validated by Military Service Chiefs and/or Service Headquarters Staff, and (if the program is of JCS interest), by the JROC.

Empower PAEs with Flexibility to Shape and Shift Program Scope and Requirements

Replicating the success of the Air Force Rapid Capabilities Office, the PAE should be empowered to shape program requirements below a KPP. The PAE would be responsible for iteratively delivering capabilities based on their capstone portfolio requirements, technological maturity, cost/budget, schedule, system performance, risks, threats, and other such considerations. PAEs would allocate capability requirements to different elements of the portfolio based on analytics to maximize MOFEs and mission impact. As programs progress, operations, threats, and priorities change. PAEs would shift requirements across programs/projects to maximize the effect of each investment in close coordination with operational commanders, empowered operational representatives within the portfolio, and other key stakeholders. This approach would not require CSBs with senior DoD officials or extensive documentation coordination across DoD. Instead, it would potentially enable programs to provide capabilities to operational commands years sooner at lower costs than if they waited to mature all technologies and develop and test all functionality to meet 100 percent of the requirements defined a decade earlier.

Assign Empowered Operational Representatives to Each Portfolio

Tighter integration of the operational and acquisition communities is critical to delivering mission impactful capabilities. Requirements organizations and operational commands currently invest time in authoring system requirements documents and collaborate with program offices with varying levels of success. A better approach would be to embed empowered operational representatives within each portfolio.

The empowered operational representatives would help shape the vision for key capability areas within the portfolio. They could provide insights on current operations and threats to help acquisition professionals and contractors shape capability developments. These representatives could provide rapid feedback on interim developments and connect programs with operational commanders and end users; assist in establishing portfolio priorities; and define, shape, and prioritize lower-level capability requirements. Requirements would be constrained by available portfolio budget and strategic direction. The operational representatives could also advise the PAE on shaping lower-level program requirements and senior leaders on strategic, long-term priorities, capability needs, and investments. These operational representatives would serve as key linchpins to shape a portfolio/mission area; therefore, portfolios should competitively staff these billets with experienced operators who have strengths in strategic planning, collaboration, and systems engineering. While the operational community faces resource constraints, embedding the right representatives to shape a portfolio's acquisitions is a critical investment to ensure timely delivery of capabilities that maximize mission impact.

As Congress has authorized new acquisition pathways and greater flexibilities, DoD has a prime opportunity to develop a tighter collaborative relationship between technologists and warfighters to iterate and identify innovative new means and ways to shape the environment. It is important not to constrict the opportunity space by biasing capability development through the lens of yesterday's and today's operations. In some cases, where an operational community is fixed on a known means and ways, there will be value to let the CONOPS drive requirements and solutions. In other cases, however, CONOPS should result from a deeper, objective understanding of technologies and their military applications, which would enable innovation achievement in the means and ways.

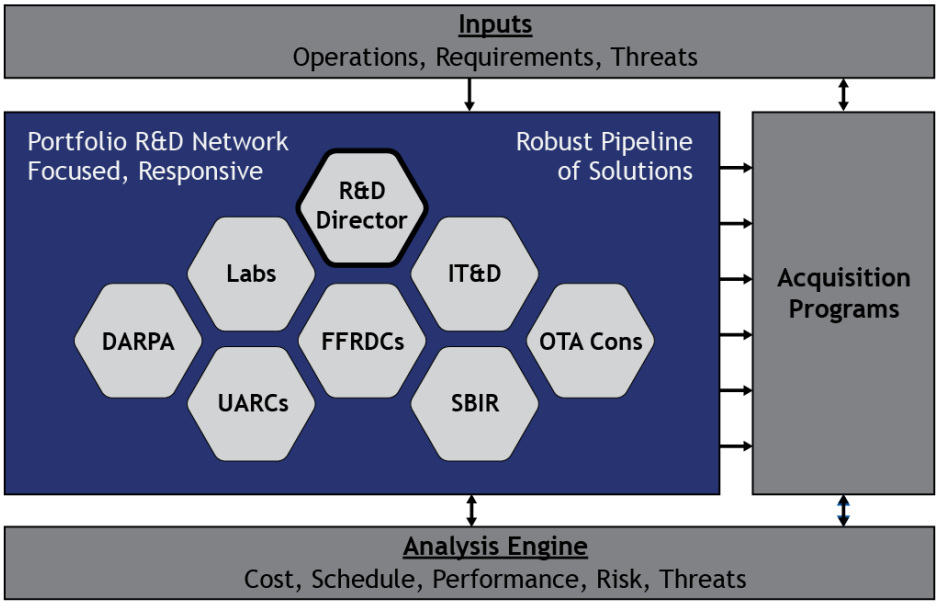
Maximize Use of Prototyping, Experimentation, and Minimum Viable Products

Execution portfolios should maximize use of prototyping, experimentation, demonstrations, and minimum viable products (MVPs) independent of specific programs as well as in the early stages of a given program's acquisition lifecycle. Congress and DoD, over the last few years, established a series of initiatives, funds, organizations, and pathways to increase use of these practices. DoD has begun implementing middle-tier acquisition via rapid acquisition and rapid fielding pathways per Section 804 of the FY 2016 NDAA. These pathways can prototype innovative technologies, demonstrate them in an operational environment, and produce mature capabilities without having to go through JCIDS and DoDD 5000 acquisition processes. A prototype or MVP in the hands of operators and engineers would accelerate learning and design of solutions beyond a team conducting a CBA or AoA. Portfolios should use the multiple prototyping pathways to the maximum extent before establishing a formal program or follow-on increment to shape scope and requirements. Iterative prototypes and MVPs would improve opportunities to exploit leading technologies and the chances of delivering high-value capabilities to

warfighters. Prototypes provide valuable inputs to mission engineering efforts by demonstrating how strengthening individual elements of a mission thread generate holistic impact.

As highlighted in Figure 2-14, each portfolio should collaborate with a robust R&D network, including the Defense Advanced Research Projects Agency, government laboratories, federally funded research and development centers, university affiliated research centers, and industry. Industry R&D can come from a variety of sources that include the Small Business Innovation Research program, Other Transaction Authority Consortia, and DoD-industry liaison programs such as DIU, SOFWERX, AFWERX, partnership intermediary agreements, technology investment agreements, grants, and cooperative agreements. Each portfolio's network could collaborate and compete on research to exploit leading technologies for military advantage. This network should focus on ensuring a robust pipeline of innovative solutions to shape the scope of new programs and modernize existing systems. Each portfolio could establish an S&T/R&D director to coordinate research activities and investments with the portfolio's network, Military Service leadership, and the USD(R&E). The directors would develop an S&T/R&D strategy and roadmap to align research with portfolio priority needs and opportunities. They could shape R&D investments as a diverse portfolio of many seedling efforts with stage funding from multiple DoD sources, technology agreements, and industry R&D funds. The S&T/R&D strategy should include *technology push* opportunities to apply leading technologies to military needs. The portfolio S&T/R&D director would be responsible for ensuring the most promising S&T/R&D projects cross the *valley of death* to be integrated into programs of record and fielded. This effort would include use of transition confidence levels to proactively connect, shape, plan, and fund the technology transitions.[6]

Figure 2-14. Interplay of Portfolio R&D, Requirements, and Analysis



[6] Anthony Davis and Tom Ballenger, "Bridging the 'Valley of Death'," *Defense AT&L Magazine,* January–February 2017, 13-17, accessed December 30, 2018, https://www.dau.mil/library/defense-atl/DATLFiles/Jan-Feb2017/Davis_Ballenger2.pdf.

Develop Portfolio Analysis Engines and Model-Based Enterprise Architectures

Portfolios could also develop analysis engines for continual integrated analysis of capabilities, requirements, threats, cost, schedule, performance, risks, and other factors. Instead of a linear, serial, program-centric model of CBAs and AoAs, a portfolio team (with staff augmentation from operational, acquisition, and sustainment commands) could expand that analysis across a suite of capabilities.

As captured in Recommendation 36 of this report, each portfolio should have an enterprise architecture lead/group that uses model-based engineering. These enterprise models, with related portfolio analysis, would help shape portfolio priorities, capability scope, and requirements, which would help ensure capabilities are designed and developed to maximize interoperability within and across portfolios. Enterprise architects would work with their peers in other execution portfolios, Military Service headquarters, and ECPs.

Tight integration with cost analysts, systems engineers, users, and financial managers helps to assess the cost-performance trade space to scope affordable solutions. Prior to the 1996 DoDI 5000.2-R establishing AoAs, DoD conducted cost and operational effectiveness analyses (COEAs).[7] The COEAs emphasized quantitative cost analysis in program formulation. Although the current policies dictate program affordability targets and caps, and cost is part of AoAs, more comprehensive cost analysis could be used to shape program scope and requirements. Adopting more portfolio management practices as outlined in this report, along with revisiting some of the COEA practices, would help ensure programs are bounded by realistic affordability constraints, based on available portfolio budgets.

Manage IT Requirements Using Dynamic Portfolio Backlogs

A software requirements model should be timely, iterative, dynamic, and user-centric. Execution portfolios should manage their capability requirements via a series of dynamic backlogs rather than large static documents. As mentioned earlier, a dynamic backlog is a prioritized list of required functions written from an operational user's perspective but can also include technical requirements such as cybersecurity. The highest priority items on the backlog drive the next capability development or research (if greater technology maturity is needed). The requirements to shape a new capability development could be iteratively captured and approved via a tailored document, depending on the size, scope, cost, and risk. Managing requirements via backlogs is easier for software and IT given their dynamic and severable traits, but portfolios could also employ this approach beyond IT programs with smaller, iterative developments.

The portfolio's operational representative should be empowered to dynamically reprioritize, add or delete, and shape capability requirements based on operational needs, threats, technical performance, systems engineering, security, feedback from earlier releases, and other factors. These representatives would actively collaborate with operational commanders, end users, organizations providing threat assessments, and enterprise architects to curate the portfolio backlog. During portfolio reviews with Military Service leadership and operational commands, PAEs and their operational representatives

[7] Defense Acquisition Management Documentation and Reports, DOD 5000.2-M, February 1991, Part 8: Cost and Operational Effectiveness Analysis, accessed December 30, 2018, http://www.whs.mil/library/mildoc/DOD%205000.2-M,%20February%201991%20Part%201.pdf.

could present the requirements backlog to ensure alignment with Military Service and CCMD operational priorities and outcomes.

Each program or increment could also manage its requirements via dynamic backlogs. As interim developments are demonstrated or fielded, user feedback and system performance might generate new capability requirements or shift priorities for the backlog. The goal should be to ensure that each successive iteration addresses the users' highest priority needs and strengthens force effectiveness.

Consider Breaking Large Programs Down into Smaller Efforts to Iteratively Deliver Capabilities

As DoD establishes execution portfolios or adopts related practices within the portfolios, PAEs should consider opportunities to decompose large programs currently in the planning and development phases into multiple smaller efforts. Each program would need to balance the pros and cons of restructuring to include timing and system-of-systems integration, which may require revisiting the CDD and acquisition strategy structure of programs in development. The VCJCS should update the JCIDS manual to enable a more iterative structure in CDDs in future programs by adopting the proposed CDD annex approach in the new JCIDS manual and effectively implementing it.

This approach would enable PAEs to comply with the direction for rapid, iterative development in the NDS, DoDD 5000.01, and FAR Part 39. For example, instead of spending a decade to deliver all the functionality required in a CDD, the program could be structured to deliver functionality years sooner and iteratively deliver capabilities and new technologies via future releases, manage common subsystems (e.g., communications or sensors) via a single group within the portfolio, and integrate across platforms. If a technology or performance parameter proves more difficult to implement than planned, the functionality could be deferred to a subsequent release to allow mature capabilities to be fielded near-term.

Implementation

Legislative Branch

- Include language in the next NDAA authorizing Military Services and Defense Agencies to pilot a portfolio requirements approach within one or more of their current PEOs or via the proposed execution portfolio structure.

Executive Branch

- Charter teams to develop a set of capstone requirements for each execution portfolio. These capstone requirements should include EERs, MOFEs, and mission threads/effect chains/mission engineering. They should provide an umbrella set of requirements to shape capability research, planning, and developments.

- Update the JCIDS manual, CJCS Instruction (CJCSI) 5123.01, and DoDI 5000.02 to empower PAEs to shape and defer lower-level requirements, below a KPP, for programs in development.

- Determine a reasonable level of delegated authority based on the size of the program, changes, risks, and other factors. The PAE should be empowered to make changes to approve requirements on ACAT II–IV programs and lower-level requirements for ACAT I programs, in

collaboration with key stakeholders. *Major* changes (e.g., KPPs for ACAT I programs) will require senior approval via the CSBs and/or related processes as defined in current acquisition and requirements policies.

- Assign one or more operational representatives to each execution portfolio. These representatives would report directly to the PAE and may have dual reporting to an operational command or headquarters staff.

- Update DoDI 5000.02 to prioritize prototyping, experimentation, and delivery of MVPs before the start of a program and in the early phases of the acquisition lifecycle. PAEs should be empowered to work with the R&D community to rapidly fund prototyping efforts to shape the scope and requirements of new programs, upgrades to existing programs, projects to improve interoperability between systems, or initiatives to improve the readiness of fielded systems.

- Charter a team to iterate on the IT Box model or develop a new approach for meeting software requirements. The team lead and team members must have experience with or a deep understanding of Agile development practices. The chosen approach should enable adoption of software development practices to include Agile and DevOps through use of dynamic, prioritized backlogs managed by product owners rather than large, static documents. Authorize iterative release approvals at the lowest level commensurate with program scope, cost, and risk.

- Outline multiple requirements pathways for DoD to follow. The pathways may include Middle Tier Acquisition rapid prototyping and rapid fielding; technology insertion and iterative upgrades to existing systems; software intensive systems; business systems; commercial solutions with little to no development; formalizing a government R&D program; IT services, cyber acquisition, and limited lifespan capabilities with little to no sustainment needs.

Implications for Other Agencies

- There are no cross-agency implications for this recommendation.

RECOMMENDED REPORT LANGUAGE

SEC.___. PROTOTYPE PORTFOLIO REQUIREMENTS.

This section would authorize each of the military departments and defense agencies to establish a pilot program focused on a portfolio requirements approach for one or more of the acquisition portfolios for which that official has responsibility. The committee notes that such an approach should enable greater speed, agility, and innovation in fielding military capabilities.

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SEC.___. PROTOTYPE PORTFOLIO REQUIREMENTS.

(a) IN GENERAL.—The Secretary of each military department and the Director of one more Defense Agencies designated by the Secretary of Defense for purposes of this section shall establish a pilot program for a portfolio requirements approach for one or more of the acquisition portfolios for which that official has responsibility to enable greater speed, agility, and innovation in fielding military capabilities. Each such pilot program shall be established in consultation with the Vice Chairman of the Joint Chiefs of Staff with respect to matters for which the Vice Chairman has responsibility.

(b) ELEMENTS.—Under the portfolio requirements pilot program for an acquisition portfolio, the Secretary of the military department or Director of the Defense Agency establishing the pilot program shall—

(1) develop a capstone set of requirements for the acquisition portfolio in accordance with subsection (c);

(2) authorize the Program Executive Officer (or Portfolio Acquisition Executive or similar portfolio manager) for the portfolio to changing the scope and requirements for programs within the portfolio, subject to subsection (d);

(3) assign representatives of operational forces (to the acquisition portfolio and authorize them to perform the functions specified in subsection (e);

(4) maximize the use of prototyping, experimentation, and minimum viable products to shape capability scope and requirements;

(5) develop a network of government, industry, and academia research and development organizations to align science and technology and research to portfolio capability areas;

(6) manage information technology requirements using dynamic portfolio backlogs (prioritized lists of user needs) rather than large static requirements documents; and

(7) iteratively define, prioritize, and refine requirements at the portfolio, program, and iteration levels based on user input and previous deliveries.

(c) CAPSTONE SET OF REQUIREMENTS.—The capstone set of requirements for an acquisition portfolio developed under subsection (b)(1)—

(1) shall be designed so as to—

(A) guide the iterative delivery of an integrated suite of capabilities to maximize operational impact;

(B) provide enduring themes based on strategic needs and relevant concepts of operation, not system specific; and

(C) include measures of force effectiveness for a force mix of capabilities to be measured against; and

(2) may include kill chains, effects chains, vignettes of operational scenarios, and related mission engineering initiatives across the Department of Defense.

(d) AUTHORITY TO REVISE PROGRAMS WITHIN A PORTFOLIO.—The authority under subsection (b)(2)—

(1) shall be carried out in consultation with operational commands and key stakeholders; and

(2) does not include authority to change key performance parameters for a major defense acquisition program.

(e) FUNCTIONS OF OPERATIONAL REPRESENTATIVES.—An operational representative assigned to an acquisition portfolio under subsection (b)(3) shall be provided authority to—

(1) shape the vision and priorities for key capability areas;

(2) provide the acquisition community and developers insights into operations;

(3) provide feedback on interim developments;

(4) foster collaboration among the acquisition community, developers, and users of the capability to be fielded; and

(5) provide advice to the Program Executive Officer (or Portfolio Acquisition Executive or similar portfolio manager).