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Innovative Ideas and Insights for Improving Program Resourcing across Seams

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Abstract

The Department of Defense (DoD) has three decision support systems that must be synchronized to deliver capabilities at the right time: the Requirements; Acquisition; and Planning, Programming, Budgeting and Execution (PPBE) systems. PPBE is calendar driven, but both the requirements and acquisition processes, which are dependent on PPBE, are activity driven. Collectively, these three systems are sometimes called “Big A” Acquisition. This paper examines integration, interoperability, and interdependency issues at the seams among these systems. It summarizes research by a panel of experts convened in support of the PPBE Reform Commission. This research included over 50 discussion sessions with current and former executives from government, industry, and academia. This paper identifies key issues at the seams and offers recommendations to complement those of the PPBE Commission.

Introduction

Providing and managing financial resources is essential to our national security. However, the Planning, Programming, Budgeting, and Execution (PPBE) system falters in its ability to operate with the requisite velocity and flexibility to enable the Department of Defense (DoD) to keep pace with adversaries in the development and deployment of military capabilities. Recognizing this need for improvement, Congress chartered the PPBE Reform Commission (National Defense Authorization Act [NDAA], 2022) to develop recommendations for consideration by the DoD and Congress to improve PPBE. The Acquisition Innovation Research Center (AIRC) was, in turn, asked by the Commission to provide research inputs in several areas, including the integration of the DoD’s three major decision systems for delivering capabilities: the requirements, acquisition, and PPBE systems (see Cardon et al., 2023). While there have been numerous calls for change within these decision systems for decades, this paper focuses on the synchronization challenges across these systems. Delivery of capabilities



to the warfighter hinges on integrating requirements development, resource allocation, and acquisition decisions. Consequently, enhancing synchronization among these systems is of paramount importance.

In this paper, we summarize issues that arise at three seams:

1. The PPBE-Acquisition Seam. This is the interface most directly addressed by the PPBE Reform Commission.
2. The Requirements-PPBE Seam. This interface is not well defined in current policies and practices.
3. The Requirements-Acquisition Seam. This interface is beyond the scope of the PPBE Reform Commission but is the target of other Congressional interest.

Methodology

Our methodology included a literature search of prior studies and analysis of issues identified by the AIRC Integration Research Panel, consisting of retired DoD general officers and senior executives: LTG (Ret.) Edward Cardon (chair), U.S. Army; David Drabkin, Esq. (co-chair); LTG (Ret.) Wendy Masiello, U.S. Air Force; LTG (Ret.) N. Ross Thompson III, U.S. Army; MG (Ret.) Robert M. "Bo" Dyess, U.S. Army; COL (Ret.) Michael Smith, U.S. Army; Elliott Branch; and Michael McGrath.

The panel met with 50 subject matter experts across the DoD, Services, industry, and academia on a not-for-attribution basis to garner insights and discuss better ways to synchronize across requirements, acquisition, and PPBE decision making processes to deliver better capability outcomes. Notes from these sessions were analyzed using a qualitative data analysis (QDA) process (QDA, 2024). Figure 1 summarizes the overall comments on PPBE, although the panel found specific comments to be of primary value to their findings and recommendations. Table 1 highlights some of the comments received in these discussions.

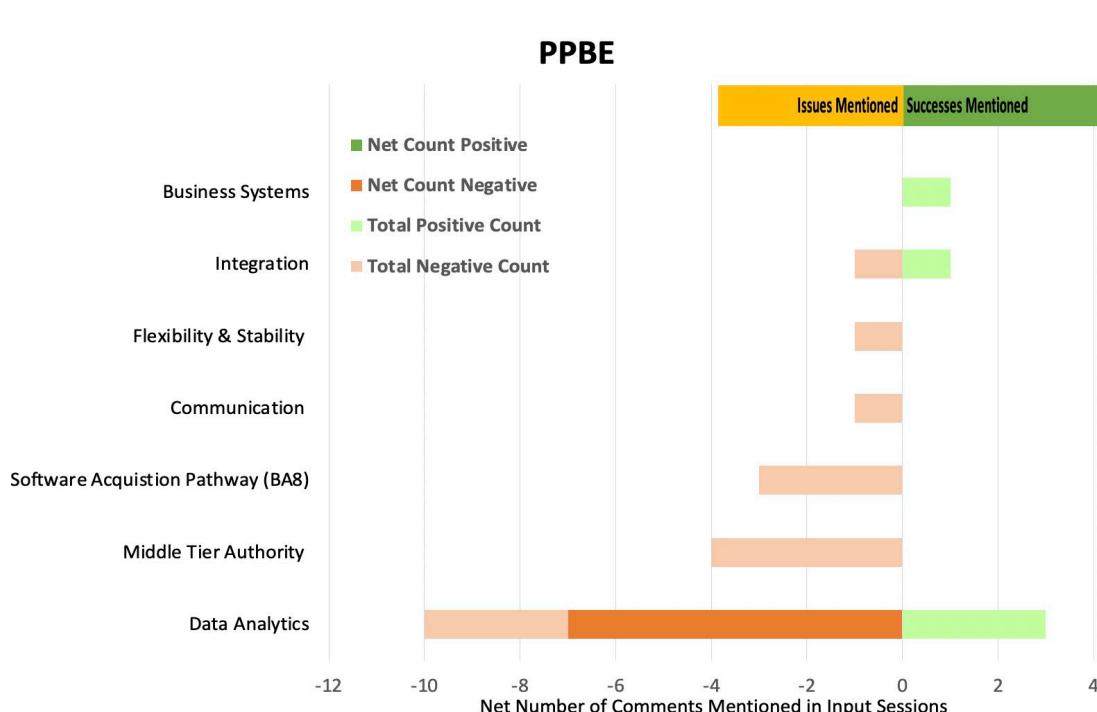


Figure 1. Categorization of Comments from the Input Sessions on the Overall PPBE



Table 1. Examples of Comments from Input Sessions

- PPBE is a good, rational, logical system – however, it is designed for a bi-polar world and not for the current environment.
- PPBE generally works well given the constraints.
- There is a lack of fidelity and granularity during initial planning that impacts Acquisition.
- We have a “Plan to Plan” but we don’t have a “Plan to Decide.”
- Lack of data availability and transparency hinders decision making.
- The Service programming process is overdesigned and unduly drives the process for strategy and acquisition.
- Program execution is a continuum, not a series of discrete budget executions.
- There is no streamlined approach to making changes once the budget is submitted.
- The reprogramming process is broken; it is almost impossible to get actions through four congressional committees in a timely fashion.
- The budget issue paper process leads to 3-star [general officer] meetings, where decisions are made with insufficient information.
- It’s the volatility of budgets, not the performance of the industrial base, that is the [innovation] problem.
- Speaking of agility and flexibility, the DoD only has \$4 billion in General Transfer Authority (GTA) out of an \$855 billion budget [only about half of a percent]!
- It is difficult to plan and execute innovative research on a timeline.
- Too many involved are not accountable for results.

Panel Findings

The panel organized its conclusions and recommendations in three categories corresponding to the seams among the three decision support systems.

The PPBE/Acquisition Seam

PPBE is calendar-driven, but both the requirements and acquisition processes, which depend on PPBE, are activity driven. This disconnect is important because both requirements and acquisition have pathways and processes that have evolved to operate much more rapidly than the 2+ year long PPBE cycle. This temporal disconnect is especially critical for urgent needs and emerging technologies, wherein needs may arise more quickly. This disconnect causes delays and missed opportunities in the effort to develop and deliver timely warfighting capabilities to address rapidly evolving threats. A comprehensive analysis by the Hudson Institute (Greenwalt, 2021) concludes that time-based competition with our potential adversaries requires a holistic change in our resource allocation process.

The Joint Capabilities Integration and Development System (JCIDS) process generates validated capability requirements. Once a requirement is approved, resources are programmed in the PPBE process, and the execution shifts to the Defense Acquisition System (DAS), where Program Managers (PMs) are constrained by the annual cycle of when PPBE inputs can be made and when appropriations are subsequently issued. As acquisition events unfold, any delays in contracting, technology development, test and evaluation, and production problems may cause a mismatch between the acquisition plan and the availability of resources. This in turn may drive changes in resources by the DoD or Congress, but with a time lag that exacerbates the problem for the PM since many of the capabilities acquired need to be technologically current to meet the threat.



The current process is dependent on the calendars of appropriate senior leadership (multiple personnel at multiple levels for each decision), which adds further lags in the system. Additionally, the need to then coordinate with four congressional defense committees (House and Senate appropriations, House and Senate authorizations) for both initial inputs and adjustments in execution, using document-based inputs and interactions, is inefficient and ineffective in an era of rapidly changing technologies and threats.

The panel developed recommendations after reviewing the following munitions use-case example, technology transition problems, and issues of trust and transparency between PPBE and Acquisition.

Munitions Case Example

Munitions are often used as “bill payers” in the PPBE process. The U.S. Army is the DoD’s Executive Agent for energetics, with an Organic Industrial Base (OIB)¹ that complements the commercial Defense Industrial Base (DIB). There are systemic issues with supply chain fragility, and there are current struggles to ramp up production of munitions due to operational needs and foreign aid. This situation has been obscured for years by faulty planning assumptions, optimization based on peacetime requirements, and complex chains of authority within the U.S. Army, the other Military Services, the Defense Agencies, and the Office of the Secretary of Defense (OSD). Recent responses to crises, such as the war in Ukraine and COVID-19, have revealed fragility in the ability to rapidly increase production. Over 50 mergers and acquisitions within the DIB have left five primes in control of the market, while inconsistent funding has discouraged industry investments. As a result, the DoD has seen a decline in production capacity over the past 30 years and lacks the surge capacity for several munitions it procures.

Defense-wide efforts on munitions procurement are affected by munitions requirements, budgeting, governance, and contracting. Formal processes are in place to establish munitions requirements, but senior leaders have little visibility into risks or tradeoffs. Munitions compete for modernization funds, which historically are then cut to pay for other bills based on an assumed ability of the DIB to surge capacity. The Army typically has no single authority that oversees end-to-end enterprise munitions matters, such as quantity and lethality requirements, the monitoring and mitigating of low demand signals to the OIB and DIB, the definition and establishment of minimum sustaining rates, the elimination of single points of failure, and the adjudication of disputes between munitions managers. Industrial concerns and constraints focus on the issues of sustainable procurement and capital investment. Industry partners uniformly complained about slowness of contracting and delayed investment decisions, while smaller businesses have been squeezed by inflationary concerns and uncertainty of future orders. Contracting personnel’s compliance incentives do not align with their Ammunition Program Manager customers’ mission focus, and the complexity of the Federal Acquisition Regulation (FAR)/Defense Federal Acquisition Regulation (DFAR) arrangements creates inefficiencies. Army-run facilities not only support Army munitions requirements and surge demands but also those of its sister Services.

Options for Improvements

There are several areas where the DoD can improve efforts in the near term. The U.S. Army could examine initiatives to strengthen unity of command, with the aim of simplifying control of munitions procurement and defining the roles of the PEOs and the Joint Munitions Command. The Army could define a single entity to establish requirements for new enhancements in lethality and range. The DoD could focus efforts on analyzing future strategic

¹ “Organic” in that it resides within the government.



munitions needs to better prioritize availability for critical munitions with long lead times. Addressing these issues could involve implementing larger (> \$500 million) funding ceilings on multiyear procurement deals to establish minimum sustaining rates for munitions. Additionally, the Army should seek Congressional approval for purchasing long-lead items for critical munitions, facilitating future production surges. Moreover, expanding the use of more cost-effective and “attributable” munitions, suitable for training or foreign military sales, could be pursued. Lastly, the DoD could fund a flexible pilot plant line to explore methods of developing new explosive synthesis, jumpstart the adoption of new manufacturing technology, and ultimately create a model that would lessen reliance on foreign sources.

While these options and recommendations may mitigate much of the production risk exposed by demands stemming from the Ukraine conflict as we are aware of it today, the industrial bases (organic and commercial) may be incapable of meeting the munitions demand created by a potential future fight against a near-peer adversary. For example, a recent CSIS analysis of a hypothetical U.S. conflict with China (Jones, 2023) exposed significant shortfalls that go beyond what these recommendations could address.

Technology Transition -- the Valley of Death (VoD)

PPBE is sometimes blamed for technology-transition problems. The DoD invests heavily in technology innovation, but for a new technology to be transitioned into a program of record, the PM must have resources programmed and budgeted years in advance of transition. The panel found, however, that PPBE is always a matter of priorities. There are many examples of intervention by senior leaders and heroic efforts to reprogram funds to pull a technology across the valley of death (VoD), sometimes to meet an urgent need (like the MRAP program [Gansler et al., 2010]) and sometimes to provide a strategically important capability (like the Long-Range Anti-Ship Missile [LRASM; Defense Acquisition University (DAU), 2019]). There are also examples of programs that are structured in advance to include transition agreements and funding (such as the Future Naval Capabilities program). And there are examples of small 6.4 program elements that have budget-year flexibility to serve as bridge funding while the program of record arranges outyear funding. Ultimately, however, the PPBE process is intended to fund the highest priorities, and the argument is that any technology that lands in the VoD simply did not have the priority to make the cut. It should be noted that it takes an exceedingly high priority to instigate reprogramming that will “break” existing programs. If innovating to keep pace with potential adversaries is a priority, then maintaining BA 6.4 Program Elements (PEs) with flexible bridge funding would be less disruptive than reprogramming.²

Trust and Transparency

The panel’s research suggests that an indispensable element to establishing transparency and trust within any complex system is direct, timely access to comprehensive and accurate data by the appropriate people and systems. There is a significant challenge in ensuring the transparency and accuracy of data within the PPBE processes due to issues that manifest in three distinct areas.

The first of these areas relates to the complex journey taken as data move both horizontally and vertically through various nodes of the decision-making hierarchies. Data originating from the Services, CCMDs, and various agencies must traverse a convoluted path as they progress from initial planning and programming stages to budgeting and execution phases. At each stage, the data are manually accessed, manually cross-referenced to operational service capability gaps (if not from a service), aggregated (generally in parts, rather

² This is consistent with the recommendation of the Defense Innovation Board to create “oasis” funding to bridge companies across the VoD. are often cited as the reason for technology projects getting stuck in the “valley of death” (VoD).



than in whole), transformed (creating “new” data), and refined (creating more “new” data) to meet the specific data demands and formats of the respective entities involved—first within the DoD, then with the Office of Management and Budget (OMB), and finally, with Congress. This intricate process of data transformation is often likened to an “information diode,” referring to a unidirectional flow of information, much like a one-way valve, and vividly illustrates the challenges at hand. By contrast, banking and investment firms use commercial technology and practices that incorporate necessary feedback loops, providing options for timely and well-informed decisions at a scale that are not possible today within PPBE’s processes.

The second formidable challenge lies in the pervasiveness of data silos, in which information is compartmentalized and opaque. The extensive nature of this challenge for PPBE is outlined in Section 7 of the PPBE Reform Commission’s (2024) Final Report. Our panel concluded that unrestricted access to all available data can profoundly enhance transparency and trust; however, it can also inadvertently lead to micromanagement and an unending deluge of inquiries concerning the purpose and outcomes of various activities. Navigating a balance requires that data access be judiciously granted to individuals and teams with direct responsibility and authority for making or informing critical decisions. By tailoring data access to align with specific roles and responsibilities, this middle ground would ensure that those entrusted with decision making possess the necessary information through coherent, real-time data visualization from a system (not from briefing charts or static documents) without being inundated with extraneous details.

The third area of concern is the allocation of decision rights and the establishment of clear accountability within the complex decision-making landscape. There is a compelling need for enhanced clarity in defining who holds the authority to make critical decisions and how those individuals are accountable for the outcomes of their decisions. As the Section 809 Panel (2019) discussed, teams at various levels should continue advising decision makers, but their operation must not delay the decision-making process with additional “sign offs.” If an issue remains unresolved, it should be elevated to the next decision level for resolution. There is a tendency to spend excessive time attempting to build consensus when the decision maker should simply consider all inputs, decide, and proceed. By comprehensively addressing the challenge of decision responsibility and accountability, PPBE organizations could bolster their capacity to make informed decisions, enhance operational efficiency, and cultivate a culture of transparency and trust with stakeholders.

A More Ideal Process for the PPBE-Acquisition Seam

The panel identified the following features needed in a more ideal PPBE process.

Planning – Could remain on an annual basis because it considers large groupings of resources in distant years. The inputs for this portion of the cycle are usually documents, such as the Defense Planning Guidance (DPG), National Defense Strategy (NDS), National Military Strategy (NMS), and the National Security Strategy (NSS), all of which look broadly and often at time horizons 3 to 30 years ahead. Critical within this phase is understanding the types of experimentation and testing that might be needed to fully provide novel technologies for the force so that resource demands can be identified.

Programming – Could remain on an annual basis. While its focus is not as broad as in planning, programming seeks to organize resources into logical groupings, and a higher confidence interval is placed on the expected needs. This phase requires the DoD and the Services to begin aligning resource needs to support anticipated high-level mission and portfolio demands roughly three years hence. However, it is unrealistic at this point to expect to know in detail (e.g., at the platform or system level) the solutions necessary to meet future capabilities. Thus, modernization programming should focus on groupings of capabilities that would capture



aspects, such as technology development and maturation and operational experimentation, to understand the required capabilities more fully at organizational and platform levels. At the same time, programming must provide appropriate oversight by placing capabilities within context and with prioritization.

Budgeting – Could move to a semi-annual basis through a fixed, systematic mid-year review that provides a standard methodology for adjusting resources based on external factors and “fact of life” activities in emerging and established programs based on changes to threat, requirements, and technological breakthroughs. This phase has two discrete sub-elements, with the first portion focusing on the traditional assembly of budget documents that address individual program element level of detail, while the second focuses on realignment of resources based on fact-of-life adjustments.

Execution – Could move from calendar-based Comptroller sweeps of unobligated funds to event-based resource managers (S&T, R&D, or Acquisition) setting obligation schedules (plans) for each program when funds are appropriated, and DoD and Service Comptrollers measuring obligation status against these plans. Congress could maintain oversight through a data infrastructure that permits real-time monitoring of resources by Congress.

The Requirements/PPBE Seam

There is a major disconnect between the formal DoD requirements process and the PPBE process at every level below the Defense Planning Guidance (DPG). The Joint Requirements Oversight Council (JROC) validates joint capability development (DoD, 2021) but has little or no influence over PPBE priorities, which are set in the Service programming process. Inputs to the panel from Combatant Commanders (CCDRs) indicated a belief that their priorities are subordinate to Service priorities with no forum for resolution.

Industry needs more visibility into requirements to construct advanced manufacturing facilities, establish supply chains for long lead-time parts, or access advanced materials. This necessitates significantly earlier commitments from the DoD than currently exist within PPBE or acquisition contracts. Better government fidelity on requirements up to a threshold level (with options via spiral development to an objective level) covered by terminations clauses in contracts would reduce industry risk and by extension, risk-premium pricing.

The requirements process is the most under-resourced of the three major decision-making systems. While urgent requirements are approved quickly, the deliberate JCIDS process has been criticized as being too slow in practice, requiring 3–5 years to develop a validated requirement for a program of record (MITRE, 2020). The lack of fidelity on production numbers based on experimentation, simulation, and user touch points, combined with the lack of concepts, and use cases informed by the Services and CCMDs in conjunction with the S&T communities, creates unstable and unsettled requirements.

Organizational Focus

There has been growing tension with the delivery of capabilities among the CCMDs, Services, and Agencies. While the requirements process is ultimately intended to support the CCMDs, the Services are statutorily directed to develop capability to support the CCMDs in their specific domains. Hence, there have always been challenges in the development and integration of capabilities from the Services (and Agencies) to support the CCMDs. While one of the roles of the Joint Requirements Oversight Council (JROC) is joint capability development, the JROC itself does not have PPBE authorities.

The other tension within organizational design is the integration of commercial industry. The PPBE process is designed for a five-year plan/program supported with annual appropriations.



By contrast, capital markets drive industry behavior with publicly traded companies focused on quarterly reports and annual forecasts. There are similar short-term pressures on companies supported through private equity firms, venture capital firms, or home offices. Given the pace of technologies, especially with the ever-increasing role of software in capabilities, industry lacks visibility of and confidence in the DoD requirements process. This problem is so acute that businesses factor this risk into price. This premium can be as much as 30%, directly impacting the top lines of the modernization portfolios and by extension the PPBE process. This is especially problematic for advanced manufacturing facilities and long lead time supplies of materials. The organization design of the PPBE processes is challenging (even antithetical) to commercial companies that operate in the dynamism of the capital markets.

Institutionally, a Cross-Functional Team (CFT) construct has proven highly successful in fostering integration on a large scale between the requirements and acquisition elements, providing enhanced efficiency and effectiveness within the current PPBE construct. While the DoD might find CFTs too unwieldy for widespread adoption across the Department, deploying CFT organizational structures strategically on the most critical (whether time or technology based) programs, featuring empowered leaders from all three decision-making systems and including appropriate Congressional representation to enable appropriate involved oversight, presents a promising solution to integration challenges. The USAF's B-21 program provides a prime exemplar of this approach, including integration with industry.

B-21 Use Case Example

The B-21 program, benefiting from its priority status within the Rapid Capabilities Office (RCO), enjoys significant advantages, including funding protection, priority resource allocation, and direct access to decision makers. This priority designation ensures that unobligated funds within the RCO portfolio, particularly those allocated to programs like the B-21, remain shielded from external budgetary pressures. The lean operational structure of the RCO, with a core team of fewer than 20 individuals, facilitates rapid decision-making processes, augmented as needed by user representatives such as Global Strike pilots, maintainers, and logisticians.

As a priority program, the B-21 receives attention from senior decision makers, allowing for timely discussions and issue resolutions. The program also benefits from direct access to key stakeholders, including Congress, the Office of Management and Budget (OMB), the Secretary of the Air Force (SECAF), and Senior Acquisition Officials (SAEs). Proximity to decision-making hubs in the DC area further enhances communication and fosters strong functional relationships, helping to address challenges effectively.

Trust plays a crucial role in the success of the B-21 program, with priority designation hinging on the establishment of trust through factual presentation, transparency, and good relationships. The RCO's approach of operating on facts, not opinions, and fostering transparency through first-hand knowledge and communication skills earns the confidence of decision makers and stakeholders. Moreover, building strong relationships with the user community, such as Global Strike Command representatives, enhances understanding of true options and needs.

The talent within the B-21 program is exceptional, with multifunctional teams selected through a rigorous selection process. User representatives, particularly from the Global Strike community, contribute significantly to shaping the program and bring valuable operational insights. The level of user support received by the B-21 program is remarkable, highlighting the program's commitment to excellence and collaboration.

In conclusion, the B-21 program's priority status within the RCO, coupled with its transparent and collaborative approach, fosters trust, enables efficient resource allocation, and ensures direct access to decision makers. The program's exceptional talent and strong user



support further contribute to its success in meeting operational requirements and achieving mission objectives.

This B-21 user story offers ways to improve program performance from requirements determination to acquisition in partnership with the PPBE process. As a practical matter, not every program can have a top-priority designation nor have ready access to decision makers. Nevertheless, practices that would benefit acquisition include:

- Afford PEOs more funding flexibility among their portfolio programs while establishing accountability for success and transparency along the way.
- Establish smaller program teams to drive more firsthand involvement in program execution, thus increasing direct knowledge of progress and issues when engaging with stakeholders.
- Encourage multifunctional program offices to streamline acquisition processes and decisions.
- Co-locate user support with acquisition teams to accelerate requirements trades during the development and even production processes. User support might include operators, maintainers, logisticians, or other key non-traditional acquisition team members.
- Give CCMDs a greater voice in the requirements process. While Services have responsibility to organize, train, and equip in support of CCMDs, they still plan, program, budget, and acquire in stovepipes. CCMDs need a strong voice in today's interconnected realm of conflict.

The Requirements/Acquisition Seam

The panel recognized that this seam is outside the scope of the PPBE Reform Commission and therefore outside the panel's charter. Nonetheless, they found that it needs improvement and provide recommendations for future consideration. The current deliberate JCIDS process is widely criticized as too slow and bureaucratic to keep pace with technology or threat in cases where time matters. An AIRC (2022) report documented a sample of 20 Navy programs where the JCIDS staffing process took an average of 2.3 years to provide a validated Concept Development Document. JCIDS is based on an outmoded waterfall model rather than the highly iterative and collaborative agile development process now used in industry. Successful programs have used cross-functional teams for collaboration and iteration among requirement developers and system engineers, often with user representatives embedded in the program office (e.g., B-21).

The adaptive acquisition framework provides pathways for Middle Tier of Acquisition (MTA) and software development that are exempt from the JCIDS process and are being used successfully by DoD Components to develop and deliver new capabilities. The AIRC (2022) report found that these streamlined requirements validation processes have reduced the documentation and staffing times by 50% while still addressing joint needs. The FY 2024 National Defense Authorization Act (NDAA) Section 811 called for the DoD to modernize its requirements process using a "clean sheet" approach. In addition to acquisition reform and PPBE reform initiatives, reform of the requirements process is needed to achieve the agility the DoD needs.



Integration Across the Seams

Space Development Agency Use Case

The requirements, PPBE, and Acquisition processes have separate “process owners”: VCJCS, USD(C),³ and USD(A&S), respectively. Solving synchronization problems for acquisition purposes, therefore, typically falls to the PEO and PM with little help from the organizations above them. There are Service champions, such as the Deputy Assistant Secretary of the Navy (DASN) positions (e.g., DASN[Ships] or DASN[Air]) who facilitate the resolution of significant integration problems, but the routine integration tasks are managed at the program level. PEOs and PMs have become adept at using existing flexibilities and authorities to the maximum in resolving disconnects.

A good example is the Space Development Agency (SDA), a direct reporting unit of the U.S. Space Force. The SDA mission is to deliver needed space-based capabilities to the joint warfighter to support terrestrial missions through development, fielding, and operation of a proliferated low Earth orbit (pLEO) constellation of satellites. This Proliferated Warfighter Space Architecture (PWSA) program uses a spiral development strategy that is launching satellites in five tranches, with a new tranche every two years. Tranche 0 (FY 2022) satellites are successfully in orbit, and the program is on pace to deliver capabilities on schedule at a price point once deemed unachievable. This has been achieved through integration across the seams in the DoD decision systems:

- Acquisition uses the MTA pathway to go fast using Other Transaction Agreements (111 days from solicitation to contract award) for all but the ground segment of the system. An open architecture, a pool of qualified contractors, and competitive awards for each tranche keeps a warm base of innovation available. This process capitalizes on affordable, commercially available launch vehicles produced and launched by SpaceX. Spiral development allows adding capability as the threat evolves and provides flexibility to defer features to future tranches if they fall behind schedule or require additional investment. The limitations of MTAs, such as five years to fielding, fit comfortably within this program.
- PPBE provides funding in a single RDT&E appropriation that is used for both development and fielding. Changes in funding can be addressed by deferring or accelerating features in a tranche.
- MTA authority exempts the program from the JCIDS process, so requirements are approved by an SDA flag/SES Warfighter Council that meets semi-annually and is supported by monthly working groups. The Council includes representatives from the Services, CCMDs, S&T community, OSD, and other stakeholders. Requirements are directly reflected in the solicitations for each tranche.

This strategy has been highly effective to date in delivering initial capability to the warfighter. It is a delicate balance. Any changes in acquisition authorities, PPBE requirements to change to procurement funding, or assertion of JCIDS process compliance could reduce SDA flexibility and slow the pace of capability delivery to the joint warfighter. Nonetheless, the SDA has shown that integration of requirements, PPBE, and acquisition can be made to work. The changes recommended by the PPBE Reform Commission and our panel would make it easier for all programs to achieve comparable results.

³ While each PPBE Phase has an owner, the USD(C)'s Program/Budget organization oversees the PPBE process.



Creating a Continuous Improvement Culture

The volume of information that has been compiled under the title of “Acquisition Reform” since the 1986 Goldwater-Nichols Department of Defense Reorganization Act is overwhelming. Notwithstanding the decades of documents, a back-to-basics approach is needed to continuously improve every aspect of the Department’s Big A (requirements, resources, acquisition). In his book *Leading the Lean Enterprise Transformation*, George Koenigsaecker (2012) outlines what it takes to build a continuous improvement culture. The concept and practice of continuous improvement and the power of respect for people are the core principles. Every individual, in every organization, must be chartered with discovering the best way of doing everything, and every process employed in the DoD should be treated as purely experimental.

The result of continuously reviewing work is to define each step as either *value-adding work* or *non-value-adding work*. Value-adding steps *transform* something, either material in a production process or data in an administrative process. Non-value-adding steps, on the other hand, tend to move things around, involve rework, and do not contribute to warfighter capability outcomes.

Many of the initiatives currently underway have helped to align the DoD stakeholders around key areas of focus that will transcend the title of the initiative or the leader who championed it. The panel recommends elevating our perspective to look at the framework for how the DoD should continuously improve and recognize the capabilities required for high performing organizations. Four specific improvements offer high payoff for integrating across the “Big A” seams:

1. Requirements—Training the requirements community is a development precipitated by the 2007 NDAA. There are approximately two weeks of training offered by the DAU (one week online and one week in residence) that lead to certification for the requirements community. The panel recommended completing the coding of requirements billets across the DoD and then ensuring that the individuals filling those billets have the requisite training. This can be done for the Acquisition workforce through the DoD and Service DACMs.

2. Alignment of stakeholders (Requirements, Resources, and Acquisition) at every level for acquisition programs, not just at the most senior levels of the Department, is necessary to create the transparency required to ensure continuous process improvement and knowledge sharing. Transparency builds trust and fosters teamwork.

3. Responsibility, Accountability, and Authority—Individuals involved in the review or approval of a program should possess all three of these traits and capabilities to have a vote. There are many levels of review, and at every level there are people on the various staffs who do not add value toward transforming something in a material or administrative process. There is a short chain of command for PMs in the DoD—PM-PEO-SAE-DAE—that all have the requisite responsibility, accountability, and authority. This acquisition chain of command is the ideal way to leverage IPTs and CFTs, and that short chain of command should be duplicated for the requirements and resourcing communities. This reinforces the recommendation on stakeholder alignment.

4. Align on key metrics that are true enterprise-level metrics for each DoD process—Improvement targets should be >10% per year for each metric area, and improvements should be expected in four metric areas:

- Quality improvement
- Delivery/lead time/flow improvement
- Cost/productivity improvement
- Human development



Recommendations

The panel's input was cited in several places in the Commission's Final Report (PPBE Reform Commission, 2024). The authors of this paper agree that the final report's 28 recommendations, if implemented, will help considerably in resolving many of the issues addressed by our panel. In particular, the Commission recommendations in Table 2 will provide much needed flexibility and insight at the PPBE-Acquisition seam.

Table 2. PPBE Commission Recommendations Affecting the PPBE-Acquisition Seam

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|---|
| #5. Consolidate RDT&E Budget Activities (BA) |
| #6. Increase Availability of Operating Funds |
| #7. Modify Internal DoD Reprogramming Requirements |
| #8. Update Values for Below Threshold Reprogrammings (BTR) |
| #8A. Increase BTR Thresholds Based Upon the Nominal Growth of the Appropriation |
| #8B. Allow Reprogramming of a Small Percentage of an Entire Appropriations Account with Regular Congressional Briefings and Oversight |
| #8C. Simplify New Start Notifications by Increasing the Notification Threshold |
| #9. Mitigate problems caused by Continuing Resolutions (CR) |
| #10. Review and Consolidate Budget Line Items (BLI) |
| #11. Address Challenges with Colors of Money |
| #11A. Allow Procurement, RDT&E, or O&M to be used for the Full Cycle of Software Development, Acquisition, and Sustainment |
| #11B. Use O&M for Hardware Continuing Improvements |
| #11C. Align Program and Program Office Funding to the Predominant Activity of the Program |
| #12. Review and Update PPBE-Related Guidance Documents |
| #13. Improve Awareness of Technology Resourcing Authorities |
| #14. Establish Special Transfer Authority for Programs Around Milestone Decisions |
| #15. Rebaseline OSD Obligation and Expenditure Benchmarks |
| #16. Encourage Use of the Defense Modernization Account (DMA) |
| #17. Encourage Improved In-Person Communications |
| #18. Restructure the Justification Books (J-book) |
| #19. Establish Classified and Unclassified Communication Enclaves |
| #20. Create a Common Analytics Platform |
| #27A. Improve Training for Preparation of Budget Justification Materials |
| #27D. Improve Understanding of Private Sector Practices |

Beyond the major recommendations of the Commission, there is an opportunity for the DoD to implement specific additional recommendations of our panel that went beyond the Commission's scope. We summarize these additional recommendations by the synchronization seam they affect.

PPBE/Acquisition Seam Recommendations

- To reduce the time for integration from a PPBE perspective, the DoD should define clear roles and responsibility (who can say "yes," and more importantly, limiting who can say "no" to approvals) and avoid the drive for consensus through staff action by elevating issues to decision makers in a timely manner; For example, on the acquisition side, it is recognized that the top line for every program is a prioritization function that comes out of a larger PPBE process. Once that top line decision is made, the policy should clearly state that:



- only the PEO has approval authority over the PM from program perspectives; all others are advisory to the PM and PEO but cannot nonconcur.
 - only the Component Acquisition Executive (CAE) has approval authority over the PEO; all others are advisory to the PM and PEO but cannot nonconcur.
 - only the Defense Acquisition Executive (DAE) has approval authority over the CAE; all others are advisory to the PM and PEO but cannot nonconcur.
 - the Milestone Decision Authority (MDA) is the main stopping point for approvals up the acquisition chain-of-command; the policy clearly states that “For MDAPs, it is DoD policy to budget to the DCAPE ICE unless an alternative estimate is specifically approved by the MDA”—thus, no others have an ability to say “no”; and
 - those above the MDA in the acquisition chain-of-command can intervene in oversight, but this should be minimized.
- The DoD should link the concept of affordability in PPBE (DoDD 7045.14, Enclosure 3) to the affordability analysis called for and defined in the acquisition community (DoDI 5000.85, Section 3, and underlying processes). Affordability analysis results should be provided to inform all JCIDS requirements validations.

Requirements/PPBE Seam Recommendations

- The DoD should empower the JROC to assign a validated CCMD Joint Emerging Operational Need Statement (JEONS) to a Service or Agency as a “must fund” priority, with DEPSECDEF visibility of the resulting resource decisions. Require that CCMDs prioritize their requirements as part of the JROC requirements validation process, and that requirement lists be matched to and reconciled with Service Budget requests in the PPBE process by DEPSECDEF.
- The Joint Staff and the DoD should give CCDR-provided scenarios, exercise, and wargaming results weight equal to that given to the Military Services and Joint Staff inputs as the basis for the annual Capability Gap Analysis of the Future Years Defense Program (FYDP).
- The DoD should provide Service affordability analysis along with requirements that are reviewed and approved by the JROC. This will provide the JROC with the Service’s sense of priorities and affordability with respect to the materiel item in question. Affordability analysis is required at Milestone A and thus is available for CDD validation (see DoDI 5000.85).
- To provide Industry more visibility into DoD requirements, especially with respect to production capacity, the DoD should include in budget justification documents provided publicly with the President’s budget request both a threshold [minimum] and an objective [stretch goal] level for annual procurement quantities. DoD acquisition programs should reflect these requirements with contract options to the objective level and termination liability clauses applicable below the threshold level. In addition, the DoD should provide cleared defense contractors with controlled access to validated mission needs and requirements statements (at the CUI and classified levels) to help with industry’s planning for Internal Research and Development (IR&D), staffing, and infrastructure investments and investment hedges.
- The DoD should provide cleared Industry (along with Congress) data and information from the President’s Budget justification books in structured machine-readable formats. (This will also facilitate improved data analytics and portfolio views discussed in other AIRC reports to the PPBE Commission.)



Requirements/Acquisition Seam Recommendations

- The panel agreed with the FY 2024 NDAA Section 811 direction to reform the DoD requirements system. It recommended starting now on such reforms, to include:
 - Forming a JS-led CFT with OSD and Service stakeholders to reform the system, specifically the boundary between Requirements (JCIDS) and Acquisition (Defense Acquisition System [DAS]).
 - Developing a more agile, collaborative, and iterative process for the integration and transition of requirements to the systems engineering process.
 - Developing a capability needs and requirements framework with pathways that are aligned to the Department's Adaptive Acquisition Framework. This would include insight into the Department's S&T processes to identify emerging products that address capability requirements.
 - Developing a process to rapidly validate the military utility of commercial solutions to meet capability needs or opportunities.
 - Developing a mission engineering approach for defining enduring requirements in a set of capability portfolios, with a set of mission impact measures that capability deliveries must seek to continuously improve.
 - Assessing best practices to ensure that the requirements process for software, artificial intelligence, data, and related capability areas enable a more rapid, dynamic, and iterative approach than used for hardware systems.
 - Developing a formal career path, structure, and training for professional requirements managers.
- In addition, the panel recommended that the reforms of the DoD Requirements process include designating a single organization or entity directly responsible for overseeing and driving the development of joint capabilities identified as CCMD priorities.

Topics for Further Research

The panel identified several promising ideas and potential recommendations that require more research or prototyping before they can be finalized.

- Existing technology can be used for a rapid prototype of a Large Language Model (LLM)-enabled approach to J-books. Commercial offerings allow the DoD to select whatever LLM is best suited (and replace it when something better is available), use controlled DoD data sources for training the model, guarantee factual accuracy and citable sources without risk of hallucinations, and demonstrate the utility of the system in responding to complex natural language queries. We believe a spiral prototype interacting with users can validate key aspects of the system well within a year.
- Budget execution reviews could move from calendar-based Comptroller sweeps of unobligated funds to acquisition managers setting an event-based obligation schedule for each program when funds are appropriated, and DoD and Service Comptrollers measuring obligation status against these schedules. Congress could maintain oversight through a data management infrastructure that permits near real-time monitoring of execution status. Needed research includes further investigation of historical obligation patterns on acquisition programs compared to the normal linear execution model.
- The DoD could ask the geographic CCMDs to propose regional equivalents to the European Deterrence Initiative (a good example) for consideration in future planning and



programming. The CCMDs and associated Service funding lines would have to prioritize within available dollars and then engage in the program and budget review processes for additional resources, if required. The CCMDs should use the capability in the Services/Agencies to execute the funds for the CCMD priorities rather than duplicate program offices, contracting, etc. That gives the CCMDs more flexibility than waiting to the end of the POM to see how their IPLs stacked up for funding. It also incentivizes the Services for meeting CCMD IPL requirements with increased funding. If a more radical approach is possible, geographic CCMDs might be given substantial control over funds for Joint emerging needs. Research is needed to develop a method of cross-CCMD coordination to avoid duplication of capability development efforts, to get stakeholder views, and to provide cost estimates. A CFT with CCMD, Service, OSD, and JS representation would be needed.

- To better inform industry on production capacity planning, the DoD could provide access to Defense Contract Management Agency (DCMA) and Defense Logistics Agency (DLA) supply chain insights to better recognize, plan, and fund for supply chain risks and production capacity issues on highest priority, cross-program parts, and end-of-life procurement needs. This would need further research regarding protection of proprietary interests and analysis of the differences between production and sustainment supply chains.

Conclusion

The AIRC Integration Research Panel is deeply honored to have supported the PPBE Commission and its recommendations. This document encapsulates our support for and endorsement of the PPBE Commission's efforts. The recommendations outlined in the PPBE Report will enhance the decision-making processes critical to delivering capabilities to the DoD. In addition, while some recommendations were not accepted, and others exceeded the mandate of the PPBE Commission, further analytical scrutiny of these recommendations by the Acquisition Research community could yield significant enhancements to the "Big A" decision-making framework essential for delivering capabilities to the DoD.

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