Project Management Institute

ACQUISITION POINT PAPER

SEPTEMBER 2017

# Winning in the 21st Century

## Command by Negation within a Portfolio, Program, Project Structure

### A Point Paper to the Section 809 Panel


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## 1.0 Problem Statement:

The threat environment for the defense of the country has gotten more and more dynamic, thus there is a need for the United States Department of Defense (DoD) to also be more dynamic and easily respond with agility. Part of the response is through maintaining, innovating, and inventing weapons and management systems to meet the dynamic needs of the warfighters. DoD uses a combination of three decision support systems (Joint Capabilities Integration and Development System (JCIDS); Planning, Programming, Budgeting & Execution System (PPBES); and Defense Acquisition System (DoDI 5000.01)) which together govern the cradle to grave process for development, deployment, and sustainment of the weapons and management systems. The combined set of decision support systems need to be able to deliver a demonstrable margin of superiority given changing technology and variety of adversaries.

In the 21st Century, the threats include more and more non-state actors that are not centralized. DoD support systems are grounded in 50-year old structures which were created out of a prior major transition, which President Eisenhower noted in 1960 as the creation of the "military-industrial complex." To help manage this change, the Air Force in the late 1950s published the "375 series," a framework for program management and a phase approach to weapons management. During the Kennedy Administration, Secretary McNamara and the "Wiz Kids" brought in systems analysis and centralized management processes. By the end of the 60s we had the PPBES as well as the underlying structures of JCIDS and the 5000 series. Many revisions have been made and proposed along the way in numerous acquisition reforms, with various implementations, but the fundamental structure remains with a centralized management focus similar to that of the large companies from the 60s[28].

Many changes are possible, but the root cause that is inhibiting agility is the aging support system of the 1960s and its centralized structure inhibiting agility. Agility is possible in large organizations when current knowledge of organizational structural theories are understood, such as New Institutional Economics (NIE)[36], and current frameworks, such as the American National Standards for portfolio, programs, and projects management, are exploited to their fullest potential with empowered leadership. Only then, within tailored institutions (rules of the game) and decentralized organizations (governance arrangement), an incubator environment that allows for agility can thrive. Simply put, the root cause inhibiting agility is the centralized nature of the JCIDS, PPBES, and 5000 support systems structure (rules and governance) and the lack of a modern empowered portfolio structure.

**Only then, within tailored institutions (rules of the game) and decentralized organizations (governance arrangement), an incubator environment that allows for agility can thrive. Simply put, the root cause inhibiting agility is the centralized nature of the JCIDS, PPBES, and 5000 support systems structure (rules and governance) and the lack of a modern empowered portfolio structure.**

We are not saying all challenges will be solved within a new decentralized portfolio structure, but it would be a great first step in clearing the path for an evolution with the "military-industrial complex" which could embrace agility at its core, as opposed to agility being an outcome of exceptions to the structure.

### 1.1 Acquisition and Threat Environment

The Section 809 Interim Report[5] notes,

> *The United States' ability to maintain technological, military, and economic superiority is being challenged because its adversaries are rapidly modernizing their militaries with an eye toward exploiting U.S. vulnerabilities and negating traditional U.S. advantages …. DoD has not adjusted to the pace of this environment…In short both the strategic and marketplace realities, as described in (the Section 809 Interim[5]) report, require a degree of agility that DoD is not currently able to deliver.*

The Interim Report[5] also stated:

- The 1986 Packard Report said that "*Excellence in defense management cannot be achieved by the numerous management layers….*" In contrast, the Section 809 Panel Interim Report states that compared to 1986, there are far more layers at DoD (DoD Acquisition), to include even larger staff, and too many regulations to count."
- (General James Mattis, in his Senate Armed Services Committee Nomination Statement) Currently, the emergence of peer competitors, mid-tier regional adversaries, and non-state actors capable of threatening U.S. interests and lives has created an unstable geopolitical landscape.
- That DoD must adapt at the speed of a changing world, leverage the dynamic defense marketplace, allocate resources effectively, simplify acquisition, and enable the workforce.

In summary, DoD support system structure lacks needed agility; it is not adapting to current threats adequately. Its centralized nature and lack of integration across the support systems actually inhibits the support system's ability to meet needed weapons and management systems capability across a broad spectrum of needs which are changing at different rates.

### 1.2 The Challenge – why does structure need to change?

DOD, the world's largest capital asset acquisition and management organization, conceives, develops, produces, and then sustains weapons and management systems across a very broad spectrum. This spectrum ranges from commissaries, health care equipment and facilities, and advanced space systems, to aircraft and armor combat systems. In a recent report, the Center for a New American Security[34] (CNAS) has proposed a new direction for defense acquisition strategy and DoD industrial policy to proceed in light of consolidation, globalization, and commercialization of defense systems industry. The CNAS Report notes four distinct acquisition - industry segments:

- Military unique
- Constrained viable for competition
- Military adapted commercial technology
- Purely commercial technology

The CNAS Report[34] calls for a *"new strategic approach to increase the department's technological edge. …to adopt nuance policy that recognizes it does business with four distinct industry segments…"* We agree, but NIE theories inform us structure will need to change and be less uniform in nature to achieve the new strategies across such a broad spectrum. Plus, the CNAS segments are just one view of a very dynamic environment that is both complicated and complex within the world's largest federal democratic government environment. The ever-evolving defense acquisition system, along with the underlying

decision-support systems, manages within a complicated group of legal and organizational policies with complex stakeholder equities.

The centralized nature of the structure stifles ideas like the CNAS's "optionality strategy" for use of industry's technology investment. Though the management systems have evolved over decades and have provided the United States with the world's most lethal warfighting capabilities, many of the fundamentals, the program office, the serial phased program life cycle, and the relevant centralized policy and procedures not only reach back to the 1960s, but have also gotten more consolidated.[37] The recommendations following in this paper provide specificity to capture and implement new strategies in acquisition, innovation, and industry interaction through structural changes, therefore enabling agility in defense acquisition. The recommendations are actionable.

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Structure changes have been noted in other reports. The Government Accountability Office (GAO) reports GAO-15-192[25] and GAO-15-466[26] recommended the use of portfolio management. The latter report, GAO-15-466[26], used the American National Standard, *The Standard for Portfolio Management*[1], as its fundamental guide for examining portfolio management within DoD. The report also noted lack of integration with the other decision-support systems, namely requirements and resources. It stated, "… governance structure includes decision-making processes and responsibilities that are divided among its stove-piped requirements, acquisition, and budget communities" which are fragmented, and this "fragmentation does not allow for an integrated portfolio management approach to making investment decision. (See Figure 2)". The GAO report[26] notes, "stove-piped governance structure is an impediment to using an integrated portfolio management approach to optimizing weapon system investment." See attachment 1 for further explanation of the current structure, as shown in Figure 2, and the recommended simplified structure needed and recommended in this paper.

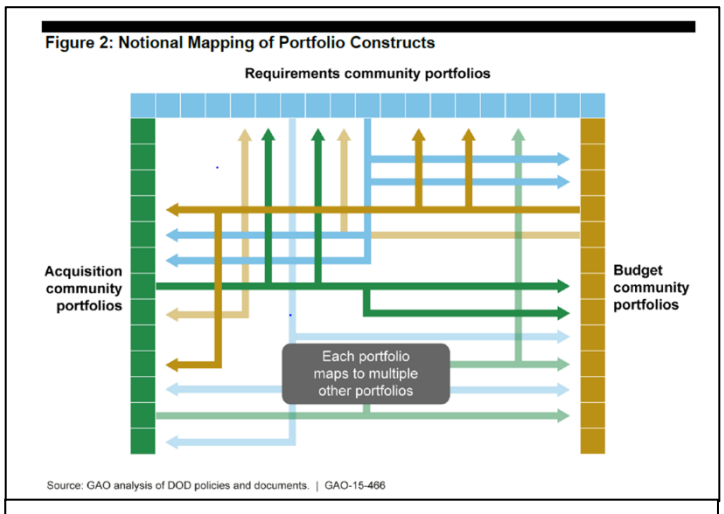


Figure 2: Acquisition Review Layers.[26]

Additionally, the current structure doesn't accommodate the broader range of dynamics in the spectrum of programs. As an example, the Joint Strike Fighter (F-35) Program began in 1993. It is expected the F-35 aircraft will be in service through 2070, with Initial Operating Capability declared in 2016; that is a 50-year plus operational time-period (Note - B-52H model, in current use, had IOC in early 60s, the first B-52 IOC was in early 50s). The current phased approach has programs going through a set of serial milestones. In the past, each upgrade was treated as a separate program, thus the "H" model or Blocks on F-16s. But F-35, which started development in 1993, will likely continue to be developed until the 2060s if not beyond. Production and

deployment is expected to continue until the 2040s (a separate phase), with sustainment (another phase) continuing in parallel. One can easily see that this complex program does not have one set of milestones A, B and C, but could have multiple as prior aircraft programs have in the past. But given the three variants of the F-35 for the Air Force, the U.S. Marine Corps, and for the Navy, the foreign military sales and those fighters' unique attributes, it is critical to determine how will the serial milestone process be implemented. The new program dynamic is the reconfiguration of the aircraft through software and modular changes. There will be thousands if not tens of thousands of engineering change proposals over the life cycle of the F-35 fighter. The reality is the F-35 is a system in which the mid-century 5000 series framework is structurally deficient. The F-35 will more likely need to follow more of an agile software type of program than a traditional hardware type of program. A recent article on a successful agile implementation within DISA noted that success was due to the tailored structure. The article states, "Most notable is the real-time control model for re-prioritizing work-in-process, the intimate involvement of customer and users in the agile systems engineer process, and the never-ending evolution with all life-cycle stages in simultaneous activity." Is the current structure set up for "all life-cycle stages in simultaneous activity?" The new structure proposed by this paper's recommendations facilitates customer involvement and increased organizational agility. This is shown in Attachment 2 at steps number 7 and 8, where the requirements representative is embedded in the portfolio management team and is responsible, in part, to coordinate customer feedback including via iterative approaches. Attachment 3 shows the embedded "Requirements Deputy" in the notional portfolio management team.

On the other end of the program/project end of the spectrum is the development of ceramic plates for armor in body protection, vehicle armor, and other uses. This is obviously a key technology that requires DoD sponsored research, but is not a weapon system by itself. The recent advances in the technology have resulted in the evolution of plate development into a useable product with testing, production, and deployment happening rapidly. The commodity (the ceramic) does not progress through a milestone A, B, and C, as it is not a weapon system. How these key technologies are managed and interface into the Program Executive Officer/Program structure is not standard, but often a unique relationship that has developed out of necessity. The relationships between technology inventors and PEO innovators will be key to agility.

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Similar work-arounds exist across the enterprise as the 5000 series and the structure to support it doesn't meet the needs. There are program teams working around the bureaucratic impediment imposed by the 5000 series. One way this may occur is via a collection of engineering change proposals that may, in essence and nominally, qualify for an ACAT level program. In one case, a collection of ECPs were the initiation basis to build a common ground system needed across a number of unmanned aircraft. Consideration was given to forming an ACAT level program but the Program Executive Officer resisted the idea since it would have a deleterious effect upon control, speed of delivery, and budget.

Feedback from the inner workings of another command involved in military sustainment and acquisition, and that supports several Program Executive Officers, indicates there are thousands of people and thousands of projects occurring that never meet the level of an ACAT program. The 5000 series along with the other support systems apply, but the command needed flexibility and economy. The use of American National Standards Institute (ANSI) standard for project management was the solution.

MITRE recently noted in their paper ***Authority, Autonomy, and Accountability***[35], "Currently full unified decision rights do not exist anywhere in the defense fielding environment. A few organizations come close, to include the Special Operation Command (USSOCOM) acquisition organization. With special funding rules, small teams, close proximity of acquisition personnel and warfighters, empowered milestone decision authorities, and an organizational mindset that prioritized rapid incremental fielding…" Other "deviant" approaches are also outlined, noting these "alternative approaches" are partly successful because of their unified decision rights.

Change in structure is needed partly due to the broadening market segments. Change in structure is needed to reverse the increased centralization of the institutions (rules of the game), the lack of integration across the support systems, and the complicated/complex nature of the systems. Change is needed to capture the benefits from utilizing evolving management framework found in national standards.

### 1.3 Historical Perspective: Where is DoD Acquisition and how did it get here?

One of the major structural changes intended on streamlining authority came with the creation of the Program Executive Officers (PEOs) in the early 90s. The PEO was meant to create a "key middle manager" [Acker, p. 311[28]] with the "Service's systems and materiel commands will be organized with a primary focus on three roles: providing necessary logistical support; managing the smaller programs; and providing a variety of support services to PEOs and Program Managers (PMs), duplicating none of their management functions." [Acker, p. 311[28]]. The intent was to eliminate management layers and functions and improve the efficiency of DoD's acquisition management. Some of the goals were achieved, but the PEO could have also played a key role as a portfolio manager; however, the "P" did not stand for Portfolio but Program. The emphasis in DoD stayed fixed upon the single program level and a serial phased process.

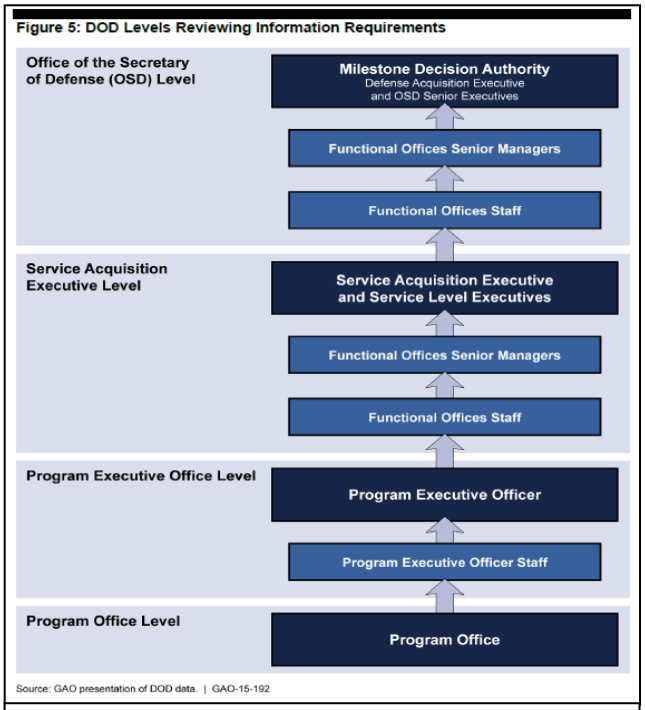


Figure 1: Acquisition Review Layers.[25]

The General Accounting Office (GAO) recognized the review process (see Figure 1 from GAO-15-192[25]) has a significant problem within the Acquisition System. The report outlines the substantial number of organizations involved in review of a program's acquisition strategy. The description of the process is a clear indication of how the intended simple three-level reporting and the use of Integrated Product Teams receded back into complexity. The organization has reverted back to the numerous reviews that were required before the PEO structure.

The challenge is the lack of authority at this "mid-layer" of management. The PEOs were not given any authority across the three decision-support systems. With the creation of the PEO, in theory, the product centers (or Material Commands or Systems Commands) and Acquisition Executive (AE) staffs within each service, the defense agencies, and OSD staff should have limited impact on the day-to-day execution of programs. In reality, across the Key Leaders [Under Secretary of Defense (Acquisition, Technology, and

Logistics "Key Leadership Positions and Qualification Criteria" Policy Memo, dated 8 Nov 13[29]], the functional staffs in the Office of the Secretary of Defense and the Service Acquisition Executives, have significant influence/authority with little to no responsibility. "Who's Responsible" is a major question in the MITRE Paper, *Authority, Autonomy, and Accountablity*.[35] The PEO concept was intended to eliminate these functional management layers and improve the efficiency of DoD's acquisition management. This effort was not effective because the structural change did not align the decision support systems to the new portfolio structure along with alignment of the functional authorities to the PEOs, such as contracting, systems engineering, logistics, financial management, and others. Most of the rules did not change. Functionally, staff entities within the Office of the Secretary of Defense and the Joint Staff have significant authority via the ability to grant or deny approval on a plethora of documents required of programs for authorization to execute. The PEO position is not even noted in Department of Defense Directive 5000.01[6] and simply a level of management in Department of Defense Instruction 5000.02[7]. This left the PEO position vague and with limited authority.

Similar changes were attempted in the requirements process with the creation of DoD Capability portfolios (DoDD 7045-20[30]) in the early 2000s, but the Capability Portfolio managers, just like the PEOs, were not given authority. On the resource front, no portfolio management effort aligned with either requirements or acquisition has been attempted within the resource processes. This lack of effort is clearly articulated in GAO-15-466, *Weapon System Acquisitions: Opportunities Exist to Improve the DoD Portfolio Management*[26].

The challenge is to streamline effectively. One could see the PEO, and limiting oversight to two layers above the PM, as the DoD answer to industry's movement to portfolio management, but the structural change did not come with authority across the three decision-support systems of requirements, resources, and acquisitions (CJCSI 3720.011[8], DoD Directive 7045.14[9], and DoD 5000 series[6,7], respectively), thus they have not been fully effective. A partial implementation which leaves parts of the requirements and resources process unaligned with the acquisition portfolio further complicates an already complicated acquisition environment.

In summary, the alignment of the JCIDS, PPBES, and 5000 support systems structure (rules and governance), with the focus on categorized programs and requirements into portfolios, though not aligned, has been tried. These partial restructures have not been enough and a move to command by negation, is needed.

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### 2.0 A Solution for Structural Change

The recommended solution for structural change is founded and anchored to:

- American National Standards[1,2,3] for Portfolio, Program, and Project Management which provide a multi-tiered framework that provides for flexibility needed in order to be utilized across diverse markets.
- Industry research that demonstrates the benefits of utilizing the national standards,
- Lean Thinking as outlined in "The Guide to Lean Enablers for Managing Engineering Programs,"[4] (Note, the guide contains results and findings from a joint project by Massachusetts Institute of Technology (MIT), the Project Management Institute (PMI), and International Council on Systems Engineering (INCOSE), which demonstrates utilization of Lean Enablers [Note: Lean Enablers are best practices that are key outputs from The Guide to Lean Enablers for Managing Engineering Programs indicating how to implement Lean Principles] significantly improved performance, and

- New Institutional Economics (NIE), which has seen four Nobel laureates awarded in the past 30 years and provides a theoretical basis for the need of changing both the institutional rules of the game and the organizational structures to change conduct. NIE theories reinforce our

**Recommendations:**

Move away from a major program-focused serial-phased milestone approach to the ANSI Standards four-tier framework which links enterprise strategy to a diverse portfolio management structure which hosts tailorable program and project management structures. Specifically:

1. Use of the American National Standards for portfolio, program and project management.
2. Adoption of a portfolio management organizational structure that is capability focused, but is diverse enough to link the overall DoD/Services enterprise strategies for specific weapon and management systems.
3. Expanded use of disciplined project management below the program level, allowing empowerment for project teams (what DoD would call Integrated Product Teams – IPTs) at the working level of weapon and management systems.
4. Unified authority across the support systems at the portfolio level with the portfolio leaders, which we will call the Systems Capability Executive Officer (SCEO), having Milestone Decision Authority (MDA) and support from equally empowered personnel that are hard matrixed to the portfolio management organization (see notional organization shown in Attachment 3) across the key leaders, including requirements, system engineering, contracting, and financial.
5. Creation of a DoD level Executive Review Committee (ERC) to address enterprise strategies, including overall portfolio structure, cross portfolio strategies, and uniform alignment of resource allocation across the decision support systems.

recommendation that to improve performance, conduct must change, and to change conduct, the institutions and the organizations need to change.

### 2.1 Utilize the American National Standards

PMI's research finds that when ANSI-accredited standardized practices for portfolio, program, and project management are used across an organization or government agency there are positive results. A series of statistics providing demonstration of the positive results are provided in Attachment 4 to this paper. It should be equally emphasized that the Department of Defense will receive great merit in speaking that same language and using the same frameworks in portfolio, program, and project management that industry speaks and uses. This would be the case if DoD used, as a basis for tailoring, the ANSI accredited standards[1,2,3]. It should not be a surprise that the use of the American Nationals Standards for project, program, and portfolio management[1,2,3] provide positive results. The standards are formulated through the efforts of the Project Management Institute (PMI), who updates the foundational standards every three years. PMI uses its global network that includes its worldwide organization of over 775,000 members in 182 countries and 285 chapters to support the development of standards and certifications. PMI is involved in the International Organization for Standardization (ISO) standards work. PMI's Standards are "research informed" which means selected topics by PMI will be researched by Academia for reinforcement of the content of the PMI's standards. In addition to academic research, PMI has a profound program of market research that aides its direction in thought leadership in the world of portfolio, program, and project management and how those management frameworks connect to

strategy. The next update to the PMBOK ® Guide[3] will be in September 2017 and will include the full continuum of project delivery ranging across predictive, agile, and hybrid approaches to maximize the ability to tailor based on proven considerations. More about PMI's market research is included in Attachment 4.

Use of and involvement in standards is endorsed by law and regulation. The Capital Programming Guide, an attachment to OMB Circular A-11[10], in section 1.5 Portfolio Management states: "*In general, agencies should establish and manage portfolios of programs, projects, and other work in accordance with Federal policy and nationally recognized standards….*" This is strong encouragement for an agency to embrace the American National Standards as recommended in this section. OMB Circular A-119A[33] stipulates that "*all federal agencies must use voluntary consensus standards in lieu of government-unique standards in their procurement and regulatory activities, except where inconsistent with law or otherwise impractical*." In our opinion, the American National Standards can be readily embraced, tailored and referenced by DoD while providing no conflict to law. The standards give robust guidance and provide holistic coverage for all types of portfolios, programs, and projects that the Department of Defense needs to execute.

### 2.2 Utilize Portfolio Management

Considerable data, documentation, research, policy, and regulations lead to use of portfolio management being the best choice as part of the new structure. Similarly, it leads to the use of program and project management (project management will be discussed later in the paper).

The primary objective is to impact performance. To do so, one must get at the root cause of the challenges described in section 1, of this paper. Like the economists looking at the broader markets, experience with industry and capital projects have demonstrated that the portfolio-to-program-to-project structure has positively affected conduct and then performance. Though the implementation of the undefined mid-level manager, the PEO, did initially streamline processes, it did not change the structure away from multiple staffs and their reviews. Thus, we must change the organizational structure to obtain changes in conduct and performance, and the recommendations in this paper provide for hierarchal changes in structure with decentralized empowerment. This paper recommends interconnecting alignment changes in structure that simplify processes, simplify alignment to the sets of system capabilities, and empower (via personnel assignment) the SCEO.

Currently the structure calls for the Major Program Manager to report through a Program Executive Officer (PEO) to the appropriate acquisition executive (AE) who is the MDA. All major programs report to either a Service, Component, or Defense AE. The PEO's have no additional authority, but are middle management. Below the program level, chartered Integrated Product Teams (IPTs) are to be utilized in an Integrated Product and Process Development (IPPD) approach, but little formal performance measurement is done at this level. Projects and Project Management are not recognized in the 5000 series[6,7]. Thus the support systems have an overemphasis on programs with multi-tier oversight. Programs at $300 million are fundamentally treated the same as $30 billion programs. Programs are expected to conform, though some tailoring is allowed, to a serial milestone review process which doesn't recognize significant projects within the program, nor the PEO's other programs which can be affiliated. Additionally, related technology efforts nor other PEO's programs are formally recognized within any type of portfolio structure, even though they are related.

Authority is vested in the OSD and Joint Staffs, where dozens of documents must pass review/comment/signature processes prior to a program manager gaining the final authority vested in the MDA. For the largest capital investment organization in the world, this centralized approach reporting through a narrow AE structure of a dozen executives is the enemy of organizational agility. It robs the PM

and the teams of empowerment while giving clout to bureaucracies who do not have authority or responsibilities for TLCSM (total life cycle systems management) of capabilities. In the chapter titled "Hands Off," found in General McChrystal's book, *Team of Teams*[31], he notes the concept of "Command by Negation," which is the naval concept of the subordinate keeping leadership informed, but not requiring permission. He notes, "I was most effective when I supervised processes—from intelligent operations to the prioritization of resource—ensuring that we avoided the silos or bureaucracy that doomed agility, rather than making individual operational decisions." The senior executive staff needs to be "Eyes On—Hands Off" for the portfolio management team, similar to that for combatant commanders. Lean Thinking with empowerment to teams is a vital element of organizational agility.

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Figure 3 shows additional support for making the bold change from the highly centralized DoD processes, where power and authority are held at the top, to a situation where the organization is empowered. Using data from PMI's In-Depth Report *Capturing the Value of Project Management through Organizational Agility*[14], we find that empowerment of team members, flexibility adaptability, and rapid decision-making are the top characteristics of agile organizations. Clearly DOD needs to improve in each of the three items, but it demonstrates that empowerment is considered a top priority. The research report also demonstrates that organizations with highly developed cultures of agility have significantly better project outcomes. These same organizations are more likely to report their team members are empowered (79%) compared to only 17% for those organizations with underdeveloped cultures of flexibility[14]. For additional information see Attachment 4.

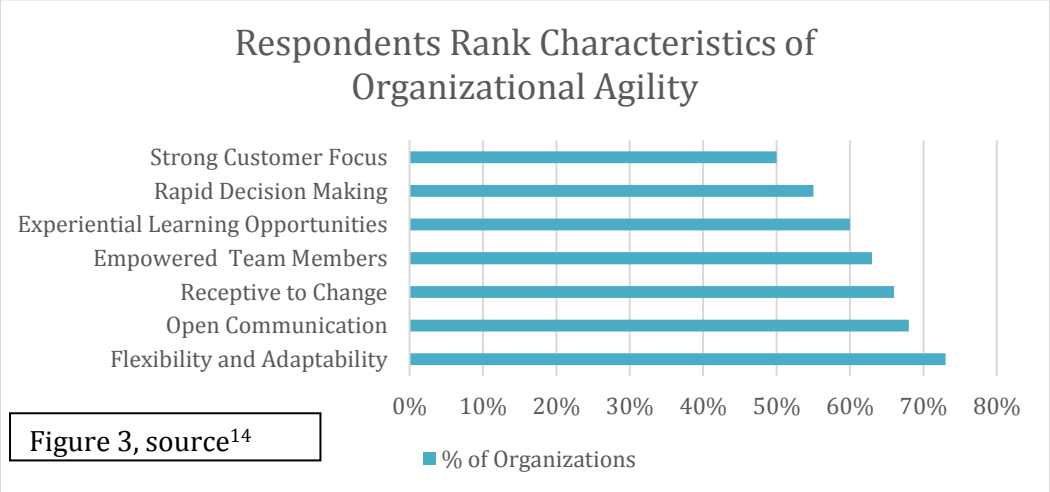


Figure 3, source[14]

Research and audits define the need for structural change in DoD acquisition. Outlined in several PMI white papers has been the need to update federal acquisition approaches to industry standards. (NAPA White Paper[11] and Driessnack 2015[13], Driessnack 2017[12]). As noted, the "three approved American National Standards can provide robustness and clarity, with a common language and a standard framework" (Driessnack 2015[13]), which, if utilized, could greatly improve the streamlining achieved with the PEO structure, while also improving the ability for DoD to empower the PEO level to use portfolio management concepts. Industry has captured value by using all four tiers (strategy, portfolio, program, projects). "The tiered structure in the ANS standards is a key to governance and understanding the distinct strategic and tactical activities" (Driessnack 2015[13]) that allow for streamlining. "The move from a single-tiered life cycle framework to a multi-tier life cycle framework that begins with the strategic plan

and flows down through a portfolio to programs and projects" (Driessnack 2017[12]), is an essential structural change that will allow alignment across the three decision-support systems, thus solving the "stove-pipe governance structure" which is called out in GAO 15-446[26]. (See Attachment 4 for more information on research concerning the merits of portfolio management).

Structure change is supported by law. United States Code, Title 10, section 2546a states: "It shall be the objective of the defense acquisition system to meet the needs of its customers in the most cost-effective manner practicable. The acquisition policies, directives, and regulations of the Department of Defense shall be modified as necessary to ensure the development and implementation of a customer-oriented acquisition system." To meet this objective, the single-tier structure with the focus on program management needs to change. Dr. Frederic M. Scherer, a Harvard Economist and one of the authors of the 1960s Harvard Studies on the *Economics of the Weapons Acquisition Process*[32], noted in the 90s, over 30 years later, that "structure, conduct, and performance" provides a useful approach for analysis of industry structures. He outlines how conduct of institutions depends upon the structure of those institutions and environments within which they operate. "Economic theory predicts systematic difference in … conduct with variation in … structure." That conduct then impacts performance [Scherer, page 3-4[27]].

To obtain better "conduct" the portfolio structure needs to allow for agility in using the ANSI framework. Though not the long-term answer, the current PEO structure, of which there are over 50, should be used as the initial complement of flexible organizations. With the several levels of portfolios comes also alignment to the multi-tier (four levels) framework of strategy to portfolios, then programs, and, fundamentally, projects. The consolidated Pentagon-focused single point of decisional authority surrounded by a praetorian guard of staffers needs to change in order to afford sensitivity and agility. The recommended changes enable responsive decision making, rational oversight, and proper executive focus within tailored, multi-tier frameworks of strategic initiatives assigned to portfolios, programs, and projects.

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The PEO role should be strengthened and expanded to allow for utilization of industry/ government standardized portfolio management. For portfolio management to be effective, the current capability portfolio approach should be rolled into the PEO portfolio structure. The current Joint Staff Capability Portfolio Manager (CPM) civilian co-lead should be transitioned via a hard matrix assignment to the Systems Capability Portfolio structure. This "requirements" representative would be assigned and trained in his/her Joint Staff home, but go under the operational control of the Systems Capability Executive Officer. A solid stakeholder communications channel is established between the newly formed Systems Capability Portfolio and the JCIDS support system. The same transition of the various programming/budget panel structures with alignment to the Systems Capability Portfolio would also need to be accomplished. These structural changes would help in the alignment of the decision support systems, as the leaders in each support system would be aligned with the appropriate portfolio.

### 2.3 Creation of Executive Review Committee (ERC)

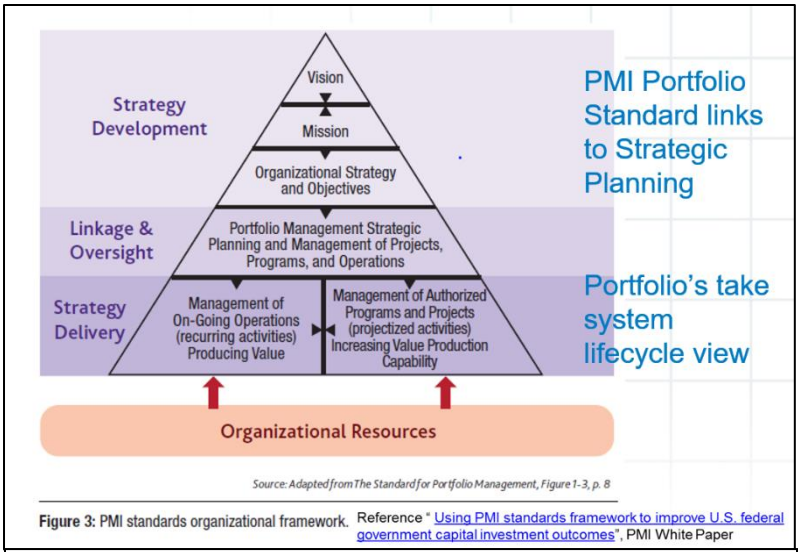


Figure 4: PMI Standards Framework to Improve U.S. Federal Government Capital Investments.[1,12]

Federal Regulations and best practice requires the establishing of governance for strategy and portfolio oversight. One of the recommendations needed to enable portfolio management is the creation of an Executive Review Committee. With the implementation of portfolio management, Acquisition Executives are freed from day-to-day execution concerns and enabled to focus on strategy, including resource allocation, across portfolios and governance of the overall acquisition system. We envision the Executive Review Committee would be chaired by the Deputy Secretary of Defense and membership would include the OSD Acquisition Executive; the Under Secretary of Defense, Research and Engineering; the Under Secretary of Defense, Acquisition and Sustainment; Service Acquisition Executives; the Component Acquisition Executives; Joint Staff; and Comptrollers.

OMB Circular A-11[10], the guidance for *Preparation, Submission, and Execution of the Budget*, also outlines top-level guidance for agency strategic plans in the 200 level sections. Appendix J, "Principle for Budgeting for Capital Asset Acquisitions" calls out the Capital Programming Guide (CPG) as supplement and prescribes the Guide as a basic reference on principles and techniques for planning, budgeting, acquisition, and management of capital assets. These policies and guidance documents "require agencies to create a formal capital asset management infrastructure [with an executive review committee] reviewing the agency's entire capital asset portfolio." DoD does not have such a review committee structure as it is currently split across JCIDS, PPBE, and 5000. An Executive Review Committee (ERC) is key to align DoD with industry best practices to "link strategic objectives to portfolio value indicators." (Driessnack 2017[12]). This approach would allow a clear definition of the value stream at the strategic level, as outlined in The *Guide to Lean Enablers for Managing Engineering Programs.*[4] The value stream is defined as the flow of work through customer stakeholders, planning, and production, as well as the overall characteristics of what is valued. It is key that this starts at the top within the ERC and flows with clear linkage down through the portfolio structure, with program and project level teams taking on the responsibility of assuring the linkage throughout so wasted efforts can be eliminated.

The CNAS Report[34] calls for a "New Technology Superiority Strategy". We agree, there is a need for an overall defense acquisition overarching strategy which will be central to the functioning of the ERC. A strategic plan is needed, as well as an overall centralized performance assessment process that measures our progress along the strategy. The approach of 50+ portfolios with tailored structure will enable agility by placing decision authority much closer to the execution teams, empowering the players in the process. The diverse and empowered set of portfolios also enables the tailoring of acquisition and execution management to place into action the new strategy that CNAS Report[34] requests of capturing technologies across various industry segments. The creation of the ERC enables senior leaders to define strategy and bring requirements, resources, and portfolios for execution together in a synergistic way. Acquisition

Executives (AE) will focus on strategy, while the portfolio teams will focus on delivering systems capability within each Systems Capability Portfolio.

**The creation of the ERC enables senior leaders to define strategy and bring requirements, resources, and portfolios for execution together in a synergistic**

Qualified System Capability Executive Officers (SCEOs), empowered by being the MDA for their programs and by obtaining key leaders for requirements, allocations, contracting, and more, can execute via their programs and look strategically across their assigned portfolio scope. The ERC and Service Acquisition Executives can oversee their respective enterprise or set of portfolios. The enterprise structure is governed by an ERC that can make the necessary strategic "decisions regarding the balancing of resources and priorities, and associated trade-offs among cost, schedule, technical feasibility, and performance on major defense acquisition programs" as a holistic system. The requirement for Acquisition Strategy [10 US Code 2431a] should be expanded to include enterprise and portfolio level strategies and roadmaps. A portfolio strategy and roadmap (both are documents articulated in the ANSI Standard for portfolio management[1]) would be developed at the System Capability Portfolio level and approved by the appropriate AE with review within the ERC following the "eye on—hands off" approach. The AE would produce enterprise-level strategies for their Services and the portfolios they oversee within the overall enterprise strategy developed by the ERC. The portfolio management documents needing review and approval by their respective AE and reviewed at the ERC will be the portfolio strategies, the portfolio roadmaps, and the portfolio budgets. It is the intent that all the other documentation needed to pass decision points or pass milestone (gate) reviews will still be approved by the portfolio-level MDA. The empowerment of the SCEO provides agility, timeliness in decision making, streamlining, and speed to providing system capabilities.

The approach would allow other enterprise views, including risk management approach [10 United States Code 2431b], with day-to-day program and project risk management being more dynamic and accomplished at the lower levels. Additionally, the AEs should work together within the ERC to assess the overall acquisition system in a holistic manner. Title 10 United States Code Sections, such as 2548, which focused on Performance assessments of the defense acquisition system, could take a more portfolio/enterprise view. The assessment process now would focus on portfolios and the enterprise as a holistic set of support systems rather than on individual programs. The assessment process, however, should stay outside the day-to-day execution of the portfolios, programs, and projects.

The ERC would be concerned with balancing the enterprise and not the details within those allocations. The ERC takes a strategic acquisition view, empowered as the senior requirements entity, portfolio-level programming and budgeting function. The ERC exists at the point of intersection of the latter existing decision systems but is primarily at the apex of those systems and across the enterprise. This is the domain of the ERC. That domain must include the approval and application of the Defense Planning Guidelines as the overarching strategy. The application of the Defense Planning Guidelines is made to the Acquisition Executives and the ERC must ensure a balanced assignment of the Joint Staff's requirements to the AEs. The AE handles the process intersection for their groups of portfolios, and the Systems Capability Executive Officer for their group of programs.

### 2.4 Alignment to the Capability Portfolios

One possible and logical outcome of the recommended structural changes is that the processes would evolve to Portfolio-level capabilities documents. The Capability Development Document (CDD) and the Capability Production Document (CPD) for particular sets of systems (programs) would be eliminated, as

the programs' systems specifications could be the single source of performance derived from the portfolio level Capability Document. A portfolio level would allow the portfolio management to work trades in cost, schedule, and performance considering the challenges (Constraints, Assumptions, Issues, Risks, and Opportunities) [38] across not only the portfolio, but also the other related portfolios for an enterprise view. With transparency across portfolio strategies and roadmaps, coordination across the enterprise which doesn't require centralized control becomes possible and enhances agility.

The alignment to the portfolio structure within the Program Objective Memorandum (POM)/Budget should be a simple alignment of Program Elements (PEs) to match the programs within a portfolio which would define a portfolio's initial budget. The Systems Capabilities Executive Officers (SCEO) must have the ability to move resources, either manpower or funding/budget, across programs/projects as needed. Movements across portfolios within an AE's span of management can then be accomplished by the AE. Changes that move across the enterprise will occur at the ERC with approval of the Chair, the Deputy Secretary of Defense.

The Systems Capability Portfolios are the point of intersection in the Venn diagram of the requirements, fiducial, and acquisition systems for their capabilities and assigned programs. An example of this structure, though not perfect, can be found in the Federal Aviation Administration (FAA) with their Joint Resources Council (JRC). It is the single investment decision-making body which covers requirements, resources and acquisition-- all three of the decision support systems-- which today in the DoD do not come together into one group. The JRC is the FAA's answer to the Capital Programming Guide's requirement for an ERC. FAA does have subordinate boards, namely the Acquisition Executive Board (AEB) for policy and process (acquisition policy), the Capital Investment Team (CIT) for preparing the capital budgets (resources), NextGen Management Board (NMB) for planning the next generation plan for FAA's systems (requirements), and FAA Enterprise Architecture Board (FEAB) (IT requirements). The structure is not perfect, but it does provide for an enterprise-level integration that is focused on the capital assets of the enterprise—a structure that is missing within the DoD and is key for successful portfolio management. The link to strategy needs to go beyond documentation, it must be reflected in the structure of the organization.

### 2.5 Utilize Project Management

Just as it is important to expand the management structure above the program, the same needs to happen below the program level with project management and revitalization of IPPD/IPTs. "Lean Thinking" blended with the application of project management will enhance the effectiveness and agility of the enterprise. The concepts of agility, value/benefits realization, waste, and creating value without waste are fundamental to lean thinking. Implementing project management is another example where the structure-conduct-performance paradigm applies. Many project management processes are taught in acquisition training, but not as a coherent set of tasks to do for projects at the working level of programs. Programs are not further broken down into baselined projects, which can then be further broken down into charted IPTs. Breaking work down for program personnel to use temporary endeavors (projects) to get work done and provide deliverables is industry best practice. Project management for team empowerment through project practices at the program working level is a missing. Adopting project management could bring effectiveness, especially with the use of appropriate measurement.

Industry has learned through utilization of lean thinking that empowerment is key for teams, as outlined in *The Guide to Lean Enablers for Managing Engineering Programs* [PMI/INCOSE/MIT, 2012][4]. Additionally, project management blended with lean thinking enables the working level personnel to "map the value stream." Mapping the value stream is the basis for creating value, or the benefits which programs are to produce. Project management is the framework used when creating a value stream

(defining a plan) for a unique endeavor. The F-35 example cited earlier was comprised of tens of thousands of ECPs. These are the projects which should be baselined and tracked, but not with the bureaucracy of the current DoD 5000. Projects are the temporary endeavors while programs have longevity. The ANSI standard framework provides a method to break down the work efforts, similar to system engineering.

DoD has paved the way for the use of project management via the methods it uses to form its teams within programs. Project management can provide the sharper focus and fundamental effectiveness to these teams. DoD evolved team development and working processes through IPPD, Integrated Product Process Development, and the work of Integrated Product or Process Teams (IPTs). These concepts evolved through the 80s and 90s and were codified in policy in 1995. Industry has used a similar approach, such as Boeing's Design Build Team, which were recently noted in General McChrystal's book, *Team of Teams*[31]. The subtitle for his book is, *New Rules of Engagement for a Complex World*; while the concept is not exactly new for product development, it is challenging to implement. DoD has an established framework for team formation in IPTs and, therefore, should use it in the formation of project teams within programs to add further discipline into the process. At its core, project management provides the way forward in practices, soft skills, and organizing to do things and produce deliverables. The use of project management provides structure for the working level personnel, which is essential for their empowerment. Once project management becomes the instinctive response of project and Integrated Product and Process teams, those teams will be able to discern what to do with minimum supervision required. This instinctive and well-experienced response is crucial for the organization's agility. (Additional project management discussion is found in Attachment 4.)

There are occasions where implementing project management during the work for a DoD Program could enhance program functions. These include but are not limited to:

- Using project management when developing contracts starting at the acceptance of acquisition strategy on through to RFPs, proposals, award, and mobilization of the contract.
- Developing major cost estimates.
- Using project management when developing new services. It can be used to determine stakeholders, requirements, objectives, risks, costs, and schedule. It frames out planning and, in doing so, the needed communications as well as the execution of those services.
- Using project management at each milestone and decision point to coordinate and orchestrate planning, preparation, control, and execution of activities through the decision point.

**Once project management becomes the instinctive response of project and Integrated Product and Process teams, those teams will be able to discern what to do with minimum supervision required. This instinctive and well-experienced response is crucial for the organization's agility.**

### 2.6 Project Training for the Teams

Defense Weapons Systems Management Center (DWSMC) was created in 1964. It established a 10-week Project Management Course (PMC) that used case materials. The school was disestablished and the Defense Systems Management College (DSMC) was created in 1971 at Fort Belvoir just as the DoD 5000 series[6,7] was being formulated. The initial directive on program management as a career was issued in 1974.

Though the 70s and 80s the DSMC principally provided a 5-month (20 week) graduate-level type course, which was required for major program managers to complete. The College also developed numerous guides across the acquisition domain that were used within the course. As told in Defense Acquisition University (DAU) history, there were still many challenges with training the workforce. This eventually led to the creation of DAU and the Defense Acquisition Workforce Improvement Act (DAWIA) in the early 1990s. With an acquisition streamlining in 1994, the 20-week course was streamlined to 14 weeks.

All acquisition functional types attended the course because cross training was one of the objectives. Integrated Product Teams (IPTs) and Integrated Product and Process Development (IPPD) were introduced officially in 1995. IPPD is the DoD management technique that simultaneously integrates all essential acquisition activities through the use of Integrated Product Teams (IPT) to optimize design, manufacturing, and supportability processes, if used optimally. In the new 14-week course, the students were divided into groups of six that represented an IPT. The group then went through all the career fields as a team over the next 14 weeks. This team approach to level III training continued until the creation of the 6-week (now 5-weeks) simulation course (PMT-352) and the 10-week case-based (PMT-401) course, which together replaced the 14-week Program Management Course (PMC). These courses were designed to continue to have functional involvement, but over time degraded to being attended predominately by program managers, a condition found before the 14-week course was implemented. Other functional areas developed their own capstone level III courses. Thus, the training as cross functional teams in the 14-week course has been lost.

As a result, the program has returned to a 10-week case-based course that is substantially attended by program managers and not the other functions on the IPT. Therefore, the Project Management and IPT/IPPD approach needs to be readdressed. This can be done with a comprehensive focus on project management for all course participants. DoD should instruct and train all acquisition personnel at the start of their training in the knowledge areas and process groups found in the American National Standard for project management[1], including a discussion about IPTs and IPPD within the DoD. Although program managers currently learn how to progress through the current complicated acquisition systems, this will enable all of the government acquisition personnel to know what to do with their respective technical and functional subject matter expertise. It will provide processes, ensure leadership (a project manager), and a focus on deliverables. Once the deliverables are completed, the project can be closed and personnel moved to other program activities. This will provide the fundamentals for project teams (IPTs) at the working level for getting things done.

Industry, in some cases, especially the defense partners, has week-long courses for control account managers (CAMs) that have the role of both managing an IPT and responsibility for the control account that represents the team's cost, schedule, and performance baseline. DoD has no equivalent course. Many programs don't follow, mirror, or integrate with their industry counterparts at the IPT/control account level, even when those control accounts represent tens of millions of dollars. Therefore, it would seem imperative to both DoD acquisition and the defense industry to train and use project management at the working level which is altogether compatible with control accounts, scope definition via Work Breakdown Structures (WBS), cost baselines, schedule baselines, and earned value performance methods. Project management provides a basis: the initiation of projects/tasks, the planning, and the execution for the performance measurement methods embodied within earned value management. Project management will provide a common lexicon between industry and acquisition personnel.

### 3.0 Barriers to Implementation

There will be numerous barriers to implementation. They include but are not limited to:

- Changes to Title 10 United States Code, including creation of SCEO with assignment of Milestone Decision Authority.
- Organizational pushback to decentralization of authority and alignment of portfolios structure across JCIDS, PPBES, and 5000.
- Training of the workforce and leadership on portfolio management. Many will assume they know what portfolio management is and can do it with no additional training, but they haven't previously worked a portfolio strategy nor built a portfolio roadmap. A key will be empowered and trained SCEOs with equivalently empowered and trained senior staff across functionals.
- The evolution to the concept of the program system specification being the requirements document derived from a portfolio capability document. Many will see the benefits with allowing trades across traditional program-level scope, but many will see this key reduction in redundancy as catastrophic to the requirements process.
- Creation of the ERC and the migration of staffs to the portfolio/program structures will be a significant change. The migration of staff from tail to tooth will be key to gaining real change. Portfolio organization will need to expand and need senior staff, which should mean moving them out of HQ and Product Centers. Reducing oversight means reducing the oversight staff.

Finally, the biggest barrier will be the implementation through the current 50 or so PEOs. It will be key to use the PEO organizations as the jumping off point for the portfolio structure. The structure will need to evolve to best fit the overall enterprise needs, but utilization of the PEO organizations will reduce the bureaucratic barriers. We see the following actions:

1. Migrate all programs/projects (ACAT I, II, and III) post Material Development Decision into a portfolio structure. This should be one of the initial events, thus moving all programmatic decisions into the portfolio structure.
2. Spread the portfolios across existing Service and Component Acquisition Executives. The Defense Acquisition Executive would not have any assigned portfolios, thus allowing the DAE to look at the overall system strategically.
3. Assign full-time, senior-level Key Leaders to each Systems Capability Portfolios with full authority and responsibility for their functional areas, including contracting, finance, cost, test, systems engineering, logistics, and product/manufacturing. Therefore, all systems development execution authority will reside with the Systems Capability Portfolios and be accomplished through their System Capability Portfolio Authorities and the Programs contained within. Only when this authority moves will alignment cross JCIDS, PPBES, and 5000 become real. These empowered portfolio staff will start the process of tailoring their portfolio to the needs to their assigned capabilities.
4. Align and potentially consolidate appropriate Program Elements (PE) to each Systems Capability Portfolio for management under the assigned key financial leader. One point of this is to allocate funds to the portfolio level, not the program level, so that the Portfolio Manager manages the funds applied to the constituent programs.
5. Align Title 10, United States Code and the related policies and procedures in the decision support system as appropriate to include but not limited to assigning the MDA to the Portfolio Manager level. This process could start with several pilots initiated under the current delegation authority of the Secretary of Defense (until laws are changed).

Many actions will be required and transition will depend on the selected SCEO and their key leaders. The SCEOs as the portfolio managers should be allowed to pull in authority as they proceed through the transition. One would expect the changes would take several cycles of the PPBE and the rotations of numerous senior officials before an enterprise- level capability is achieved.

### 4.0 Conclusion

The United States needs to enhance its agility in the management of its weapons and management systems in order to maintain the military, economic, and technological superiority for the defense of the nation. The "Big A" Acquisition process has become too ponderous in an attempt to avoid risk and avoid costs. Einstein is quoted as saying that one should make things as simple as possible but no simpler. The use of American National Standards for portfolio[1], program[2], and project management[3] provide frameworks for streamlining, but also provide the end stops to avoid the potential chaos that could occur without any guidance. The standards are robust and are meant for most applications most of the time. We fully understand the need to tailor their use in every application. They show more simplicity than the multilayered staff review processes slowing current acquisition. Their recommended use by no means is meant to get rid of all existing processes, but those can be simplified via the newly created System Capability Executive Officers (SCEOs) who use portfolio management. The requirements processes and resourcing processes need to be aligned to the System Capability Portfolio structure to enable effective conduct. This is compounded powerfully by making the current PEO level the milestone decision authority and defining the authority and responsibilities of the PEOs as they are reformulated into SCEOs. This enables the superiors/leaders to focus on strategy and it empowers the SCEOs to function as leaders of their charge and bridge between DoD strategy and system capabilities development execution.

The acquisition workforce is further enabled to gather quick decisions from their readily available SCEOs and empowered by combining the use of Integrated Product Teams and project management. Working level teams will have the generic processes to define the path ahead given the proper objectives, desired deliverables, and constraints.

Because the acquisition is decentralized into many capability portfolios, all the while linked to only enacting things that will accomplish the strategy, then adaptability and agility is made possible to the unique products, systems, and technologies for that portfolio. In the end, the changes will enable the defense markets to be more adaptable and innovative and be more integrated with the non-defense markets. Agility will be enhanced with more capable and integrated systems delivered to the warfighter.

**…the changes will enable the defense markets to be more adaptable and innovative and be more integrated with the non-defense markets. Agility will be enhanced with more capable and integrated systems delivered to the warfighter.**

Winning in the 21st Century will required the synergies possible by structural change and the empowerment of command by negation within a Portfolio, Program, Project, IPT framework.

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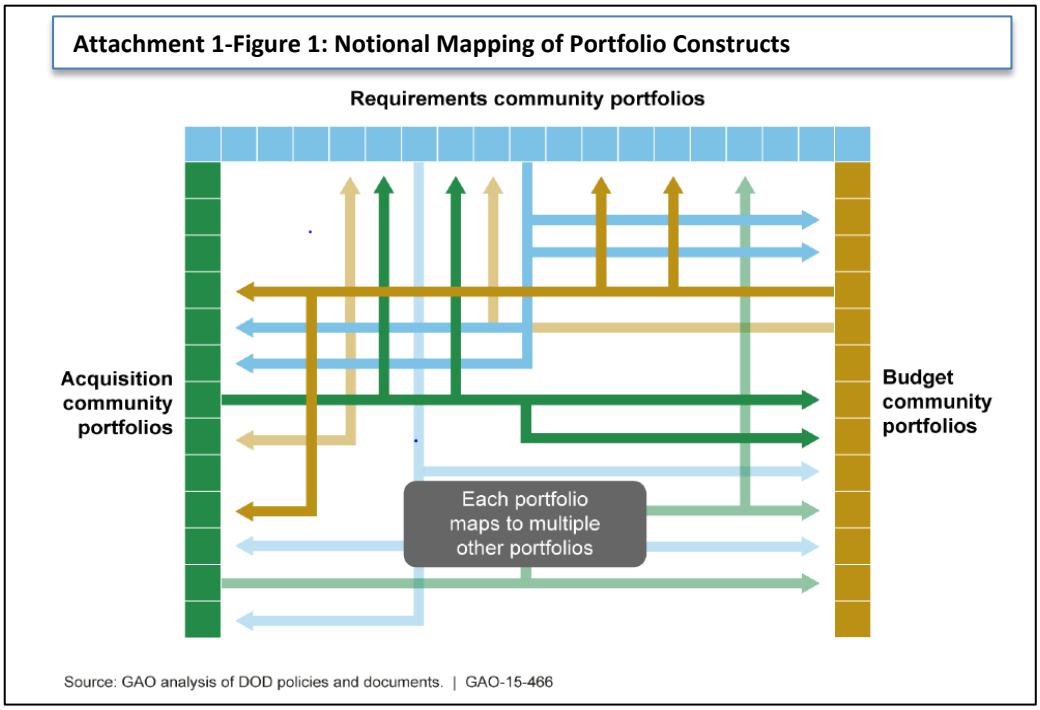
**Attachments**

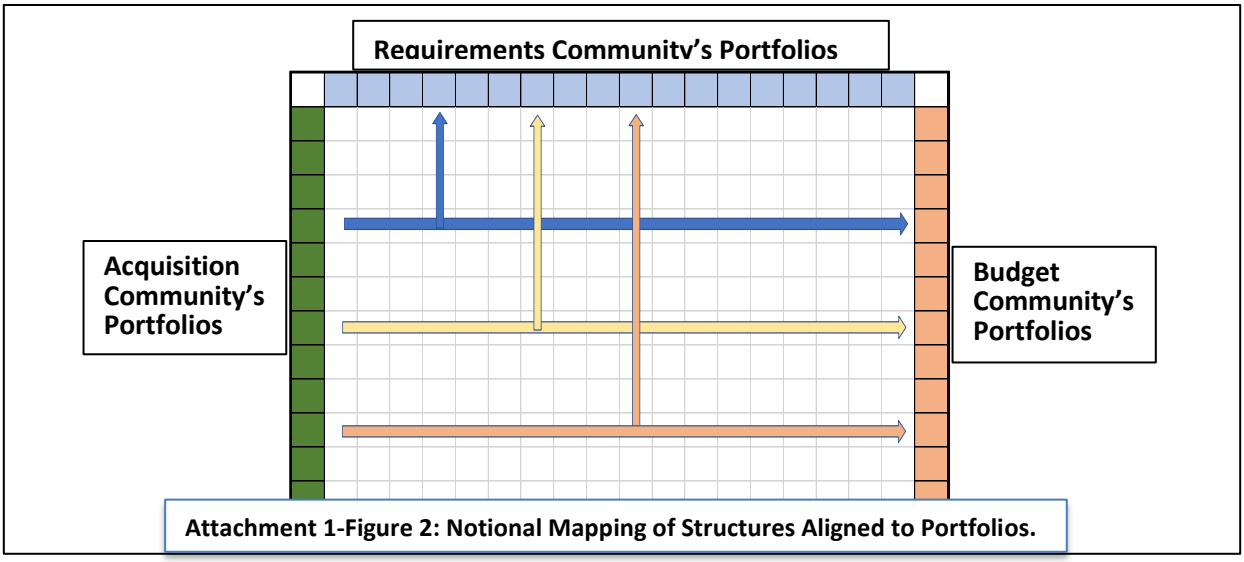
1. Diagram Contrasting Existing DoD Acquisition Decision System Stove Pipes with Recommended Aligned Structure.
2. ERC – AE – Systems Capabilities Executive Officers Information Flow Diagram.
3. Capability Systems Portfolio Organization Chart, Notional.
4. Project Management Institute Information.

**<u>Attachment 1</u>: Existing DOD Acquisition Decision System Stovepipes and Recommended Alignment.**

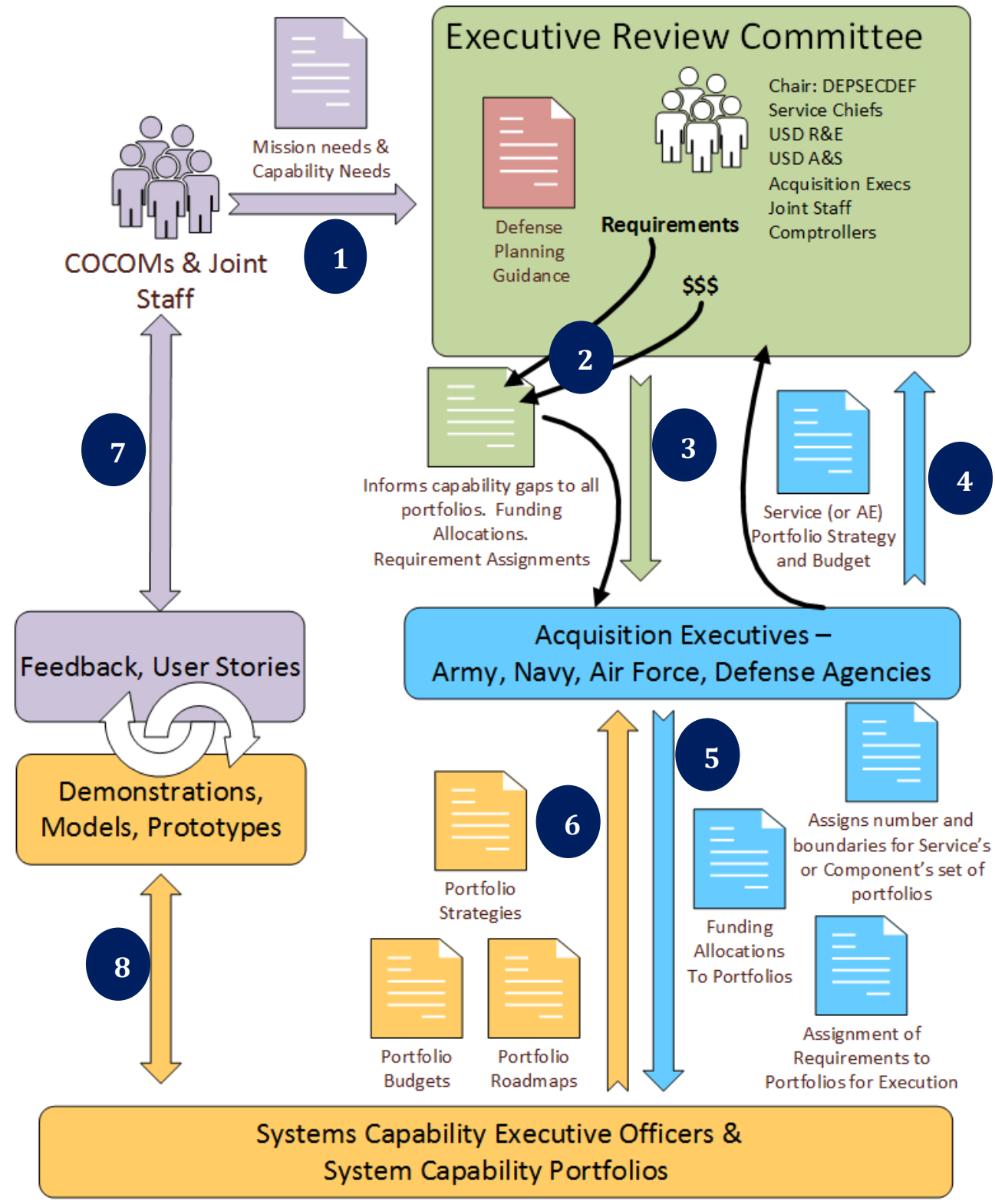
GAO-15-466 [United States Government Accountability Office, GAO-15-466: Opportunities Exist to Improve Department of Defense's Portfolio Management, *August 2015.*] informs us that the current stovepipes in the DoD requirements, acquisition, and budget processes lack an integrated approach. DoD attempted to align these processes in the 2006–2008 time period. It apparently was "impossible," especially since alignment infringed upon responsibility areas or "turf" and was therefore met with resistance. Analysis requires "they" have to go through extensive mapping exercises, as notionally illustrated in Attachment 1-Figure 1 below.




The recommendation is to start by using the current groupings of programs under the existing PEOs as the starting point for defining System Capability Portfolios (SCP). Any program not already in a SCP will have to be inserted into a portfolio. This will allow streamlining and clarity. Where there's clarity then further streamlining, effectiveness, and efficiency can follow.



**<u>Attachment 2</u>: ERC-AE-System Capability Executive Officer Information Flow Diagram.**




1. The Joint Chiefs of Staff (JCS) ensure needed capabilities from the Combatant Commanders (COCOMs) are identified and communicated to the Executive Review Committee (ERC), probably in the form of an Initial Capability Documents (ICDs). The JCS or their staff ensure strategy information, as needed, is supplied to the ERC.

**<u>Attachment 2</u>: ERC-AE-System Capability Executive Officer Information Flow Diagram.**

2. The ERC develops / approves the Defense Planning Guidance (DPG) as the enterprise level strategy. The ERC uses the DPG and ICDs to assign capability development to the Service Acquisition Executives (or agencies Component Acquisition Executives). The ERC ensures the DPG is fully assigned. The ERC ensure funding allocations are made and the ERC ensures alignment of the requirements and resource systems to the System Capability Portfolios. Note that there is an opportunity for innovation, competition, and collaboration between the SCEOs to provide the best value solution to various capability needs.

3. The AEs ensure assignment to the System Capability Executive Officers of what has been assigned to the Service or Agency.

4. AEs provide the ERC Service or Agency level Portfolio Strategies, budget information, and other budgetary information needed in the Defense budget submission.

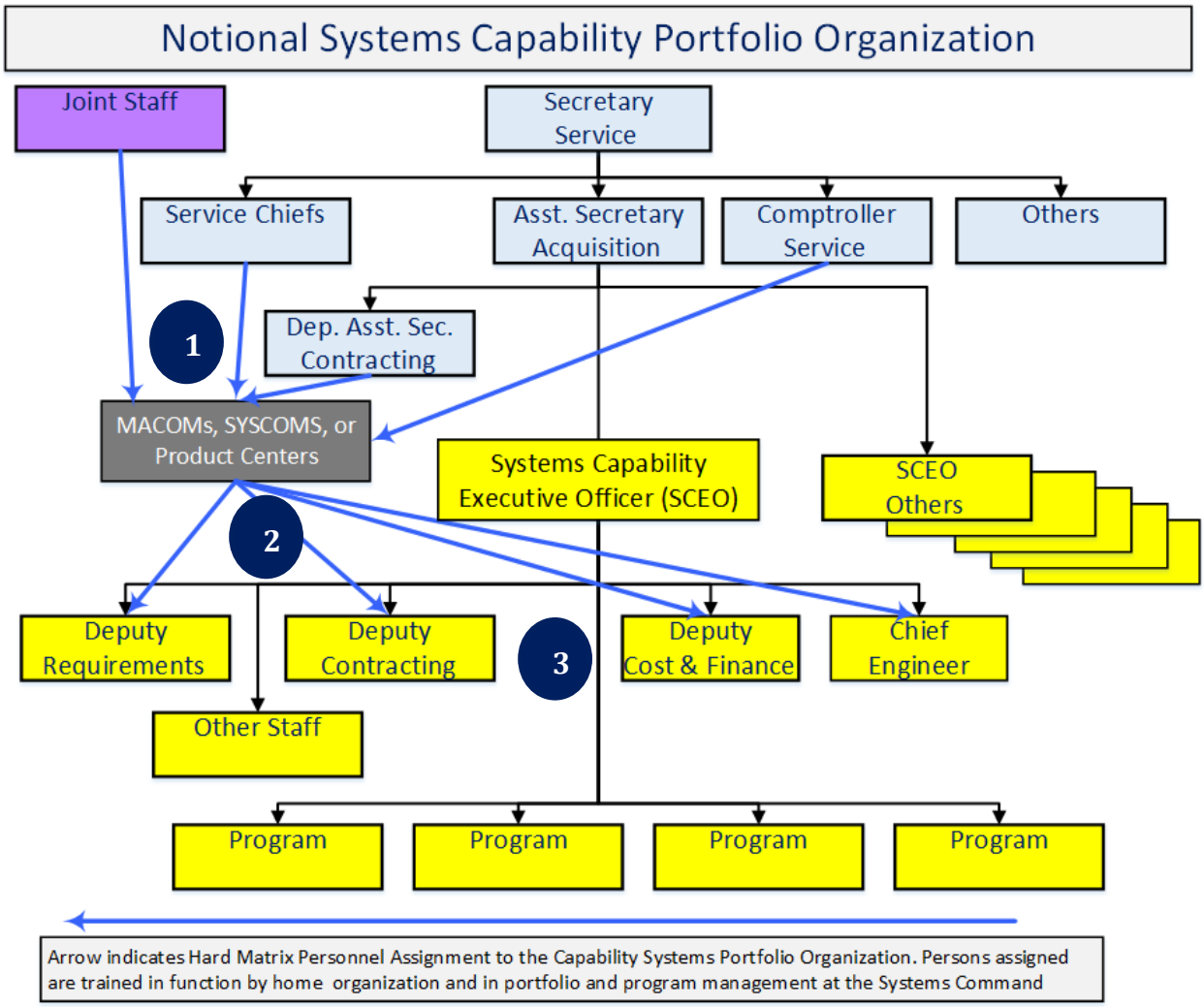
5. The AEs define the number and scope of their System Capability Portfolios. Requirements assignments are flowed down to the SCEOs, and approved budgets (funding allocations) are provided to the SCEOs.

6. The SCEOs provide System Capability Portfolio Strategies, System Capability Portfolio Strategy Roadmaps, and System Capability Budget requests. Also, needed stakeholder communications and reporting will flow up.

7. The Combatant Commanders provide user information and feedback to concepts, designs, and prototypes. The Combatant Commanders ensure that the design, attributes, lethality, etc. can be folded into battle plans and their overarching operational systems views.

8. As facilitated by the Requirements Deputy on the SCEO Staff, an iterative cycle of models, designs, images, descriptions, and prototypes are provided to Combatant Commanders or other appropriate users to gain feedback for development, for changing threat environments, and to ensure the Combatant Commanders know what weapon systems will be received.

**<u>Attachment 3</u>: Notional Capability System Portfolio Organization Chart**




1. The various leaders and executives train personnel for assignment to Systems Capabilities Execution Officers. The training is for their functional responsibilities such as requirements, financial, contracting, engineering, and logistics.

2. The personnel assigned to SCEOs will be assigned via Material Commands / System Commands for further orientation training. Subsequently they are assigned to SCEOs.

3. The "hard matrixed" deputies will be fully warranted to represent their home organization and, therefore, provide all the needed functionality of that organization to the System Capability Office. The whole set of assigned deputies provide a fully empowered Capability Systems Office to conduct and execute weapons systems development and acquisition.

**<u>Attachment 4</u>: Addition Information About Portfolio Management, Project Management, and the Project Management Institute.**

**Introduction:** The information that follows in this attachment:

- Introduces the Project Management Institute,
- Provides reinforcement for the use of portfolio management and project management, and
- Provides information about the Project Management Institute (PMI).

**PMI Introduction:** PMI is a not-for-profit membership organization interested in advancing the science and profession of project, program, and portfolio management. Founded in 1969, PMI delivers value for more than 2.9 million professionals working in nearly every country in the world through global advocacy, collaboration, education, and research. It advances careers, improves organizational success, and furthers maturation of the profession of project management through globally recognized standards, certifications, resources, tools, academic research, publications, professional development courses, and networking opportunities.
In a business world of constant change and disruption, portfolio, program and project management work in concert to deliver strategic results. While organizations may refer to projects and programs by varied names and descriptors, they are in essence the way change happens and how work gets done. Overarching these functions, portfolio management enables executives to meet organizational goals and objectives through efficient decision making. Portfolio management is both a mindset and a competency that keeps organizations focused on priorities and change factors.

**PMI Research:** *Pulse of the Profession*® is PMI's annual global survey of project, program and portfolio managers charting the major trends in project management. Since 2006, PMI has charted the major trends in project management through a global survey, *Pulse of the Profession*®. The 2017 *Pulse* features feedback and insights of 3,234 project professionals, 200 senior executives, and 510 PMO directors from a range of industries. Following the release of the Pulse Report, PMI typically adds two or three In-Depth Topic reports developed from the research and/or further questions and additional analysis. In addition to the Pulse research, PMI annually develops a Thought Leadership Series of reports, which reflect issues that surface in from the annual *Pulse of the Profession*® research, to discuss the importance of project, program and portfolio management as a strategic business driver. Within this research PMI has published a number of reports concerning strategy and portfolio management.

**Portfolio Management:** Many organizations fail to assess thoroughly the alignment of projects and programs to strategy, often because they are busy managing many projects and programs at one time. PMI's Thought Leadership Series demonstrates the value of portfolio management for maintaining alignment between an organization's business strategy and investments. The reports, which provide executive-level insights, were developed in collaboration with the Economist Intelligence Unit (EIU), The Boston Consulting Group (BCG), Deloitte Consulting LLP, and others. Portfolio management is defined as the "centralized management of one or more portfolios that enable executive management to meet organizational goals and objectives through efficient decision making on portfolios, projects, programs, and operations." A good number of the related reports by PMI are listed in the paper's references from number 14 through 24. These reports are full of important information, but a concise selection of items regarding the merits of portfolio management is listed below. PMI's research finds that when organizations or government agencies report that they are highly effective at portfolio management that:

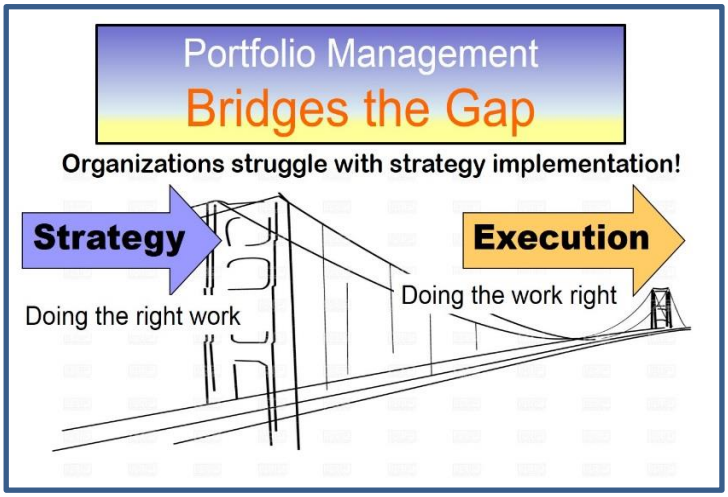
**<u>Research Comparing Organizations Maturity in Portfolio Management and Selected Results</u>**

1. 68% projects are completed on time rather than 50% for organizations that are minimally effective in portfolio management or an increase of 36%.

**<u>Attachment 4</u>: Addition Information About Portfolio Management, Project Management, and the Project Management Institute.**

2. 64% projects are completed on budget rather than 50% for organizations that are minimally effective in portfolio management or an increase of 19%.
3. 77% projects met original goals or business intent rather than 65% for organizations that are minimally effective in portfolio management or an increase of 18%.
4. 62% projects met or exceeded forecasted ROI rather than 48% for organizations that are minimally effective in portfolio management or an increase of 29%.
5. 94% of the high-maturity organizations said that portfolio management had a positive tangible impact on their organization's success, compared to 64% of the low-maturity organizations.
6. 88% of the high-maturity organizations indicated that portfolio management is a competitive advantage for the organization, compared to 56% of the low-maturity organizations.
7. 83% of the high-maturity organizations stated that portfolio management allows their organization to be agile when unforeseen market conditions and competitive situations arise, compared to 59% of the low-maturity organizations.

Portfolio management is the management of one or more sub-portfolios, programs, or projects to achieve strategic objectives. A portfolio is a component collection of programs, projects, and operations managed as a group to achieve strategic objectives. Portfolio management includes interrelated organizational processes by which an organization evaluates, selects, practices, and allocates its limited internal resources to best accomplish organizational strategies consistent with its mission. In this context portfolio management is the bridge between strategy and execution.




No strategy (for instance a strategy to address a set of weapon capability gaps) has value without execution. Therefore, the execution of strategy through portfolios, programs, and projects is a strategic capability. The more effective and rapid the response to change/ needs and execution via development, the more it becomes a strategic advantage. Portfolio management is performed in an environment broader than the portfolio itself. Portfolio management roles and processes span the organization.

Portfolio management is different than project and program management. Portfolio management aligns with organizational strategies by selecting the right programs or projects, prioritizing the work, and providing the needed resources. Program management harmonizes its project and sub-program components, and manages their interdependencies in order to realize specified benefits. Portfolio management functions include interrelated organizational processes by which an organization evaluates, select, prioritizes, and values it strategic initiatives.
The ANSI Standards for portfolios, programs, and projects are the frameworks used by industry and the language that industry speaks. All change and development is accomplished through a portfolio of programs and projects. Doing these things well is a strategic asset. Organizations that elevate these roles are better prepared to capitalize more quickly on new opportunities and initiatives. Organizations need to have talent ready to deploy or redeploy in response to change. Using proven best practices to ensure

acquisition professionals gain the knowledge, skills, and ability to do portfolio, program and project management provides a bench strength to enable agility.

**Project Management:** Repeatedly the *Pulse of the Profession®* has shown that when proven practices are implemented, projects are more successful. The 2017 *Pulse* report featured feedback and insights from 3,234 project management professionals, 200 senior executives, and 510 PMO directors from a range of industries, and interviews with 10 corporate leaders, PMO directors, and directors of project management. The many *Pulse* reports display a wealth of data supporting the value of using project management.
PMI's research finds that when ANSI accredited standardized practices are used across an organization or government agency there are positive results, such as the following:

- 57% more projects and programs are completed on time.
- 38% more projects and programs are completed within budget.
- 46% fewer projects and programs suffer from scope creep.
- 31% more projects and programs meet their goals and strategic intent.
- 58% fewer projects are deemed as failures. 58% fewer projects are deemed as failures.

The Project Management Institute recommends all acquisition personnel receive training in and find the appropriate occasions to apply project management within DoD programs for defense weapons systems development. The recommendation is based upon increasing effectiveness of working-level teams and overall program agility.

Implementing project management is another example where the structure-conduct-performance paradigm applies. Many project management processes are taught in DoD's acquisition training, but not clearly as a set of processes for doing projects. The processes are part of program management as well, but PMI looks at programs as groups of projects being accomplished together to realize benefits that would not be realized if they were done separately. Projects are to be initiated, planned, executed, and closed, but the program will go on to do other things including elements of operations. Projects occur at the program working level. DoD training enables navigation of the complicated triad of decision systems. Breaking work down for program personnel to use on temporary projects to get work done and provide deliverables is a structure that will enhance effectiveness. By getting project management into the DNA of personnel capabilities and into programs will be an asset that leads to agility. The empowerment of project teams on programs will come from people knowing what to do with the functional and technical knowledge they possess. The nature of project management is to define a path forward for things that are unique, that may have never been done before. Project management for team empowerment through project practices at the program working level are a logical step forward for DoD built up from the basis of IPPD and IPTs. These concepts evolved through the 80s and 90s and were codified in policy in 1995. DoD has established a framework for team formation in IPTs and, therefore, should use it in the formation of project teams within programs to get things done.

Agility would also be increased via the use of agile approaches to project management where agile approaches can provide an advantage. The training and use of traditional and agile project approaches, the blending of agile project management or a hybrid of project management methods. These terms are explained below. The use of traditional and agile methods inherently provides flexibility, agility, and paths for getting work done more efficiently and with customer focus.

**<u>Attachment 4</u>: Addition Information About Portfolio Management, Project Management, and the Project Management Institute.**

**Research about Organizational Agility or Agile Approaches:** PMI published an In-Depth Report in the fall of 2015 regarding Organizational Agility [The Project Management Institute, Capturing the Value of Project Management through Organizational Agility, A PMI In-Depth Report, September 2015]. It defined organizational agility as the ability to change or adapt rapidly in response to market conditions or other external factors, including new competitors, emerging technologies, customer demands, and sudden economic and sociopolitical shifts. This definition can easily be modified to a rapidly changing threat environment rather than market conditions. This definition is provided to distinguish organizational agility from agile project management approaches. Examples of agile project management approaches include, but are no means limited to, Lean, Scrum, Kanban, Dynamic System Development Method, Feature-Driven Development, and Extreme Programming. These approaches and the other agile approaches can be useful but predictive project management remains useful as well. Blending is a term that means blending agile methodologies in accomplishing projects. Hybrid approaches include using predictive project management on some projects and agile on other projects. It also can mean that a combination of predictive and agile approaches are used on the same project in combination. Organizational agility would include the ability to use agile project management, blended agile approaches or hybrid approaches as needed for the particular organization. But organization agility is a larger concept than agile, blending, or hybrid project management. The following is material from the In Depth Report—"Capturing the Value of Project Management through Organizational Agility" [ibid]:

> *Successful organizations share a common feature: the ability to pivot and implement quickly in order to achieve competitive advantage. PMI defines organizational agility as the ability to change or adapt rapidly in response to market conditions or other external factors, including new competitors, emerging technologies, customer demands, and sudden economic and sociopolitical shifts. We can easily change this business framed definition to a definition for the complex threat environment in the world today for the Unites States of America.*
>
> *Organizational agility, which can be found in every functional area of business and government, is about being able to question routines and identify opportunities. It requires effective communication and proper change and risk management. It can also include much more than the widely used project management tools and techniques of agile and other approaches. In fact, agile approaches to project management and formal project management can—and do—co-exist successfully. Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements. Agile allows teams to deliver projects piece by piece and make rapid adjustments as needed. Agile is not done in place of managing a project. Rather, it is frequently introduced as a way to speed up the phases of a project. Our Pulse of the Profession® findings indicate the most important characteristics of an agile organization include flexibility and adaptability, open communication, openness to change,* ***empowered team members****, experiential learning, rapid decision making, and a strong customer focus.*

DoD recognizes it needs enhanced organizational agility. One of the initial recommendations PMI is making seems basic but it is essential as a first step for DoD in gaining further organizational agility. One of the five elements in the Organizational Agility In-Depth Report's [ibid] description of the "Framework for Agility" is having **capable people and applying the right talent management resources** to the work. Training all personnel in the fundamentals of predictive and agile project management enhances their empowerment and it enhances their capability and talent.

## Attachment 4: Addition Information About Portfolio Management, Project Management, and the Project Management Institute.

### The Project Management Institute

Accountability, ethics, community, and engagement are guiding concepts for PMI. Through times of growth and change, these values provide continuity, help PMI communicate its mission, and steer its decisions as the world's leading not-for-profit professional association for the project, program and portfolio management profession. PMI perceives there is no association or networking group that provides the knowledge, learning experience, richness of membership, and the personal satisfaction that that PMI does. PMI provides to individuals:

- Global standards.
- Certifications that meet the shifting demands of projects and employers across the globe.
- The largest project management network, with opportunities to talk and interact with some of the most experienced project managers as well as young professionals just entering the workforce.
- Access to the leading knowledge-sharing resource and community for global project management at www.projectmanagement.com.
- Opportunities to contribute as a volunteer through local chapter activities, which helps build experience and develop careers.

In the past year PMI has worked with more than three million individuals engaged in the practice of project management through global advocacy, collaboration, education, and research (both academic and market). The group included certified professionals, volunteers, business, and governments to forge important relationships that demonstrate the value of project, program, and portfolio management. PMI's mission is to ensure the individuals that have chosen project, program, and portfolio management as a profession are prepared as leaders. PMI by the numbers include:

- More than 10,000 volunteers from every region of the world.
- Over 740,000 Project Management Professionals (PMP)®-certified professionals, more than half of whom live outside the USA.
- More than 470,000 members from 182 countries and territories, served by 285 chartered and a number of potential chapters.
- More than 5 million copies of all editions (including official translations into more than 10 languages) of *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)* in circulation.