DoD ENTERPRISE PORTFOLIO MANAGEMENT SHOULD CONSOLIDATE A MULTIDIMENSIONAL PORTFOLIO MANAGEMENT STRUCTURE[1]

John Driessnack[2]

I am not a product of my circumstances; I am a product of my decisions.

Stephen R. Covey[3]

Abstract

For years, a portfolio vis program structure has been proposed as the management structure for weapons investments within the Department of Defense (DoD). Program Executive Officers (PEOs) appear to be portfolios, but PEO programs drive the DoD decision support systems (D2S2), not the PEO structure of portfolios. The concept of portfolio management within the department needs to embrace the seven performance domains within the ANSI Standard for Portfolio Management and move to a multidimensional portfolio management structure under an integrating enterprise portfolio. The structure should align with the department's primary investment functions, enabling capabilities across *combatant command* conducting *missions* with *operational units* using *materiel systems*[4] that incorporate cutting-edge *technology*. The structure should not align with the secondary functions within DoD, namely the D2S2. The Department of Air Force (DAF) Operational Imperative (OI) capital investment initiative could be used to pilot the structure using a network of aligned model within an integrated master schedule that is informed by the challenges across the portfolios. The enterprise's information systems need to offer a centralized structure for collecting information and building an Integrated Multidimensional Portfolio Analysis Challenge Tool (IMPACT) to assist all levels of management with decision analysis with a more holistic integrated view.

Introduction

The term portfolio and portfolio management, specifically capability portfolios, has become increasingly popular within the United States Department of Defense (DoD), Congress, and those who write about how to improve the DoD. Recently, a multidimensional portfolio

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[1] Paper is part of AIRC Final Report, Dec 2023 Available at: https://acqirc.org/publications/research/portfolio-performance-analysis-and-visualization/

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[3] Quote referenced from Chapter 2, *Decision Quality*, *Value Creation from Better Business Decisions*, by Spetzler, Winter, Meyer.

[4] This paper uses materiel to mean equipment, apparatus, supplies used by an institution, such as the military. We combine that with systems, materiel systems, to define a set of equipment, apparatus and supplies working together as a mechanism or an interconnecting network. Often the term weapon system is used, which is generally defined to include the personnel to utilize the military materiel system.

management approach has been suggested as an alternative to the department's poorly implemented current Capability Portfolio Management policy, DoDD 7045.20, first published in 2008 (Driessnack, J., & Kenney, C., 2023). The capability portfolio management approach evolved from capability-based planning (CBP), which came from the 2001 Quadrennial Defense Reviews and the Aldridge Report 2004 (David, Paul K. et al., 2008). It also responded to the GAO report (GAO-07-388), BEST PRACTICES, An Integrated Portfolio Management Approach to Weapon Systems Investments Could Improve DoD's Acquisition Outcomes, March 2007. In the past 15 years, the directive policy has not had a significant impact given none of the decision support systems processes use its structure. In 2021, the department started conducting integrated acquisition portfolio reviews (IAPRs) as an effort to "rebalance from a program-centric approach to a portfolio based perspective"[5] The DoD stated in GAO, GAO-220-104687, the department "will continue to work across the Department to find creative data collection solutions to manage the flow of program risk and performance information to key senior leadership decisions forums such as the Deputy Secretary's Management Action /Group (DMAG) and the Integrated Acquisition Portfolio Review (IAPR)." An update to DoDD 7045.20 has not yet been published.

The House Armed Services Committee (HASC) recently called for a brief "by March 1, 2024, on recommendations for integrated capability portfolios across the military departments" (House Report 118-125., 2023). The report discusses the "capability portfolio model budget created by consolidating up to 20 percent of the smallest budget line items within the selected portfolios." Wait, *READ THAT AGAIN*, that was a request from Congress on program element (PE – or capital investment budget line) consolidation to a portfolio level. The report used language from Section 809 Panel Volume III, Section 2, Portfolio Management Framework, which outlined the concept of a Portfolio Acquisition Executive (PAE) (Section 809 Panel, 2019) and language from a recent Atlantic Council Interim Report (Lofgren, Eric, et al., 2023) concept to run a test with a capability portfolio from each military department, Special Operations Command (SOCOM), and a defense agency.

Most of these portfolio management discussions have focused on the alignment of portfolios across the DoD Decision Support Systems (D2S2). We will refer to this as the horizontal view in reference to Michael Porter's Value Chain concept of primary (vertical) and support (horizontal) functions. Dr LaPlante noted in his remarks at the NPS Acquisition Research Symposium in May 2023, that OSD is working to align portfolios across the D2S2. This alignment across secondary processes has been the theme for the past 15 years. This approach is focused on OSD participation in the D2S2, and thus does not include direction for the military services or the 4th estate DoD agencies, which is where the underlying portfolio management needs to happen as that is where program and project are managed.

Portfolio Management of Projects and Programs

[5] Gregory Kausner comments at Common Defense 2021 conference, reported by Tony Bertuca, Inside Defense, 28 Sept 2021

There is relatively little discussion on what portfolio management includes. In the review of numerous DoD-related papers, we found very little reference to the American National Standard Institute (ANSI) Project Management Institute (PMI) Standard for Portfolio Management (ANSI PMI-08-003-2017) or the International Standard Organizations (ISO) Project, Programme and Portfolio Management - Context and Concepts (ISO 21501:2021), nor the Project, Programme and Portfolio Management – Guidance on Portfolio Management (ISO 20504:2022). The ANSI standard had a significant update in 2017 and is planning for another this coming year. ISO has also been updated in the last several years. The DoDD 7045.20 is almost void of discussion about industry best practices and currently, the Defense Acquisitions University (DAU) has no classes on portfolio management with only a couple hours of lecture in the executive courses at Defense Systems Management College, the senior program management school for DoD. Most of the discussions, including GAOs report (GAO, 2022a & 2022b)[6], on portfolio management have been focused on prioritization for investment decisions, which is important but is a very limited view of portfolio management of programs and projects.

One could consider the Program Executive Officer (PEO) structure for programs and projects within the services and fourth estate acquisition organization as portfolios, but in general, the executives leading the portfolios are not held accountable to any portfolio standards nor are there any formal baselining of the performance of the portfolio. Currently, there are over a dozen PEOs in each service, over 50 PEOs or PEO-like organizations across the DoD, typically each is managing on average several billion dollars annually in investment funds with the total capital investment of $315 billion dollars annually. [7].

University of Maryland's (UMD) Portfolio Management Research

UMDs Project Management Center of Excellence, starting in the summer of 2022, was ask by the Office of the Assistant Secretary of Defense for Acquisition & Sustainment within the Acquisition Data and Analytics Directorate, ASD(A) ADA to look at how best Mission, Capability or PEO portfolios could be organized and how they could report during the investment decision processes. Its initial report was published by the NPS Acquisition Research Symposium in May 2023 (Driessnack, J., & Kenney, C., 2023). .

The first conclusion in the NPS papers was:

> The concept of portfolio management within the department needs to embrace the seven performance domains within the ANSI Standard for Portfolio

[6] These reports often refer back to prior GAO report going back to 2007, GA0-07-338, Best Practices: An Integrated Portfolio Management Approach to Weapon Systems Investment Could Improve DoD's Acquisition Outcomes.

[7] See graphic from https://comptroller.defense.gov/Budget-Materials/ Summary Budget Documents, Program Acquisition Costs by Weapon System, page 3, viewed on 6 Aug 2023

Management, especially strategic and value management, so clear objectives for these sub-portfolios can be determined, and thus, a performance management structure can be established to drive the appropriate measure that will allow data-driven management to those objectives.

The second was:

Moving to a multi (many) dimensions (measure in one direction) view of portfolio management under an enterprise portfolio structure for D2S2 decision-making will allow the DoD organizationally to form a structured network of teams with clear empowerment, which embraces John Kotter's Accelerate concept of a second system within a company that is organized in a network, which has shown a proven approach to accelerate strategic agility and strategic execution in a faster-moving world.

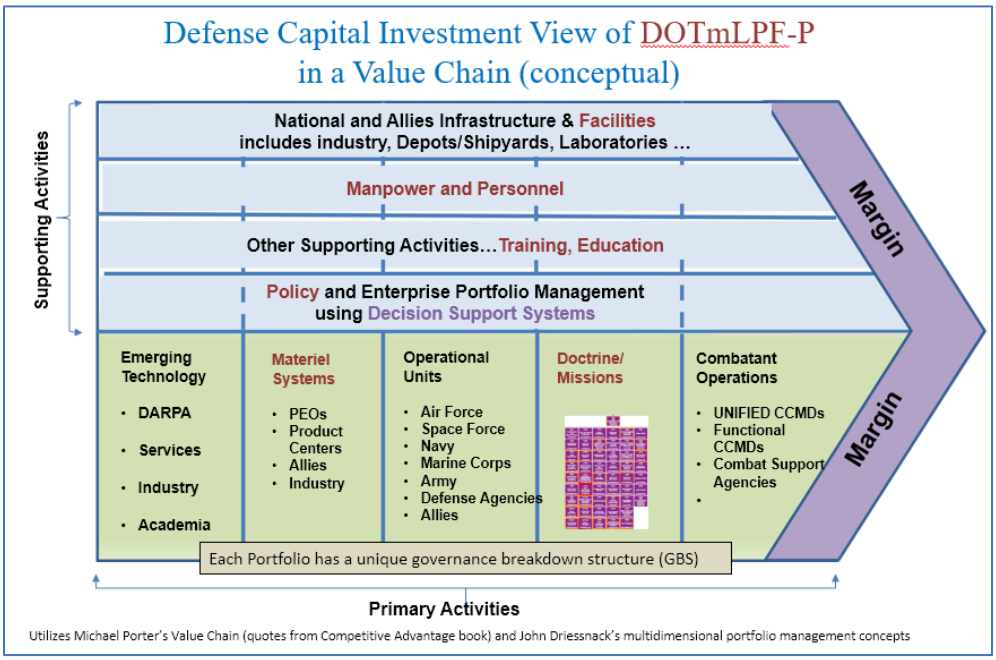

Figure 1 Defense Capital Investment Value Chain Concept

The concept of the multidimensional portfolio structure supports the portfolio standards concept of creating a portfolio strategy and structure that enhances the organization's value. The value chain approach recommends that organizations focus on the primary activities, which for most organizations are creating and selling their product (Porter, M. E., 1985)[8] The concept includes paying attention to the vertical linkage with other firms' value chains. If this industry best practice is used to design the portfolio structure within the DoD, what should the

[8] Michael Porter Value Chain's primary activity categories are Inbound Logistics, Operations, Outbound Logistics, Marketing and Sales, and Services.

portfolios be for capital investment management? The UMD research proposed a Value Chain concept using primary functions from emerging technology, integrated into materiel systems, which are deployed to operational units, who use them on missions, within a combatant operation (see Figure 1)

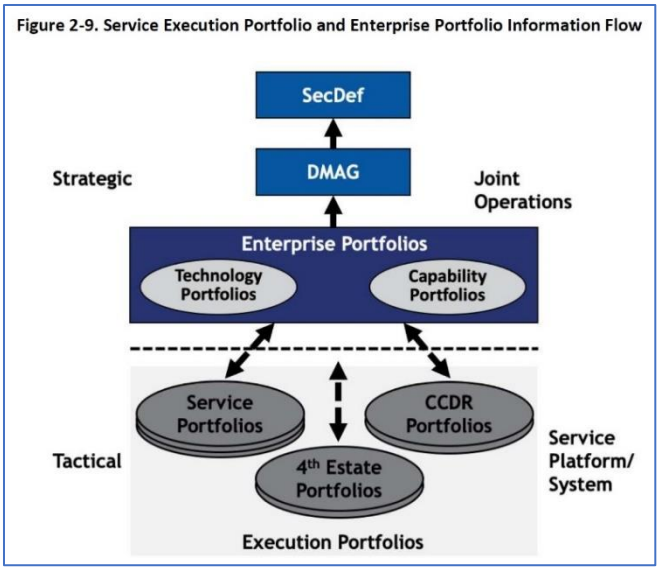

Figure 2 Section 809 Panel Enterprise Portfolio Framework

The Section 809 Panel Volume 3, Section 2, Portfolio Management Framework concentrated on the DoD level framework by creating two Enterprise Portfolios, a technology focus under USD R&E and a capability focus under USD A&S (see Figure 2) under the Deputy Secretary Management Action Group (DMAG). This was for management oversight, as the panel recommended "moving defense acquisition from a highly centralized, program-centric model with stovepipe-driven requirements, budget, and acquisition processes to a collaborative, decentralized, portfolio-centric framework .." The report noted that "Portfolio managers need to devise critical questions on portfolio value that support the development of capital asset-focused strategies, roadmaps, and analytical models. The portfolio manager should ask critical questions that cut cross DSS to tease out strategies that drive an optimized portfolio (Section 809 Panel, 2019)[9]"

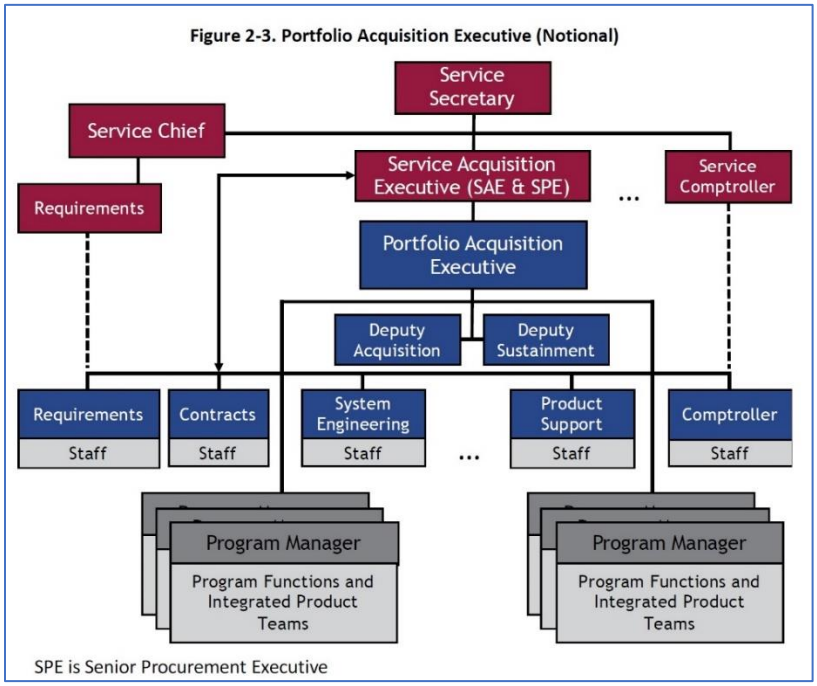

Figure 3 Portfolio Acquisition Executive Concept

The Section 809 Panel did not suggest any changes to the current DoD PEO portfolio structure but did suggest, as part of the decentralized empowerment to authorize the PEOs as a Portfolio

[9] Section 809 Panel Report, Volume 3, Section 2, Conclusion, pages 84-85.

Acquisition Executive (PAE) (see Figure 3). The panel noted that the "PAE must continually assess emerging threats, operational effectiveness, and the portfolio's capabilities and harness opportunities evolving from technologies and innovation. … required to develop and maintain a portfolio capability and technology roadmap as part of the 20-year portfolio strategy under Recommendation 38."

These recommendations align with Michael Porter's thoughts that beyond the value change, there is a "need for integrating mechanisms that must be established in a firm to ensure that the required coordination takes place." What is striking for the DoD is that most suggestions for portfolio management are around the department's second function, the decision support system, not the primary, the products and capabilities produced to accomplish the warfighting mission. The 809 Panel created the PAE as a portfolio that cut across the D2S2 framework with portfolio-level staff from across D2S2 including operators for requirements and comptroller staff.

Multidimensional Portfolio Structure

What does DoD produce? The purpose of looking at value creation is from the DoD capital investment view, which leads the UMD research to select the following production functions that are unique to the military. This included **technologies**, operationalized into **materiel systems,** which are then utilized by **operational units**, which are utilized in coordination with other units to accomplish **missions** conducted within a **combatant operation**. The five dimensions[10] are **technology, materiel systems, operational units, missions, and combatant operation**. The technology and materiel portfolios would be the PAE,[11], but there is still a need to manage/evolve the portfolio of operational units, Doctrine/Missions[12] and combatant structure.

It is not suggested that Services and Combatant Commanders utilize a programmatic-driven portfolio management structure. Our focus is on capital investments, which invest capital to meet operational unit and combat commander needs as defined by the structure of operational units, Doctrine/Missions, and Regional, Functional, or Support combatant structures. These structures and their relationships operationally across DOTmLPF-P could be evolved and managed as portfolios. Think fighter squadron or naval joint task forces. Missions could be organized by a structure based on the CJCS Campaigns and Operations structure and the Universal Joint Task List (UJTL) structure. Though portfolio management, the evolution and reset could be managed over time. The challenge is the balance between standardization or uniqueness across regional combatants. What are the priorities within each of the portfolios? How are those priorities changing? How are

[10] NPS papers noted four dimensions, the Combatant Structure has been added to make five

[11] For today's Technology Executive Officers a Technology Acquisition Executive (TAE) would be created

[12] https://www.jcs.mil/Doctrine/Hierarchy-Chart/

operational units and their concepts of operations (CONOPS) changing given what is happening in the materiel and technology portfolios? Thus, the need for oversight at the enterprise level, such as the DMAG mentioned earlier by the Section 809 Panel.

Today, the department has portfolio structures under Program and Technology Executive Officers (PEO and TEO) organizations. The latest DoDD 5000.01[13] calls for "Capability portfolio management, mission engineering, and integration analysis using an effects/kill chain framework will be employed to assess the integration and interoperability of the SoS [system of systems] required to execute critical mission requirements." How is integrated analysis achieved under the current program structure in which the mission thread structure, the integration analysis across combatants and services, and 4th estate organizations is not standardized?

There is a need for an integrated analysis across the combatant, mission, and operational unit portfolios that can be aligned with the evolving materiel systems and future technology changes. As noted in the NPS paper, the Department of the Air Force (DAF) has recently created the Operational Imperatives (OIs) concept and related team structures to manage the relationships and needed alignments. OIs Teams, which one can easily see as portfolios of capability, could be seen as a portfolio aggregate of operational capabilities in which there is an "imperative" to improve the capability to meet mission needs. The DAF, which includes the Air Force and Space Force, built the FY24 Budget partly around the seven OIs and created an OI Team co-leads with an Operator and PEO for each. A Core Team of executives provides oversight (think enterprise portfolio) and is assisted by an Enabling Team of key midlevel leaders with staff to "enable" the process. The Core Team is the enterprise portfolio management, and the Enabling Team is the enterprise portfolio staff.

Operational Imperative Demonstrates the need for new Portfolio Structure

A pacing scenario, such as Long Range Kill Chain (LRKC)[14], within mission threads feeds into the OI, mapped to several PEOs who managed several materiel systems. Those systems need to be updated with technology or quantities increased. The technology comes from the Air Force Research Laboratory (AFRL) or other defense labs or industry. The figure is a notional representation and does not reflect any particular scenario.

The effort to define the OIs and get them funded was bolted onto the standard department's normal Planning, Programming, Budgeting, and Execution Systems (PPBES) corporate structure. If one thinks of the current defense corporate structure as the standard production line.

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[13] DoD acquisition directive and instructions were significantly revamped from 2020 to 2022

[14] Long Range Kill Chain is a mission scenario, more information at https://defenseinnovationmarketplace.dtic.mil/technology-interchange-meetings/2024-lrkc-lrf/ or https://en.wikipedia.org/wiki/Kill_chain

A process that guides the "corporation" through a series of events to a corporate decision on the Program Objective Memorandum (POM) and Budget. The OI effort can be considered an expedited effort that is outside the normal production line but affects the production line at various times. With the FY24 Budget submitted and the POM year (FY25-28) adjustments, the

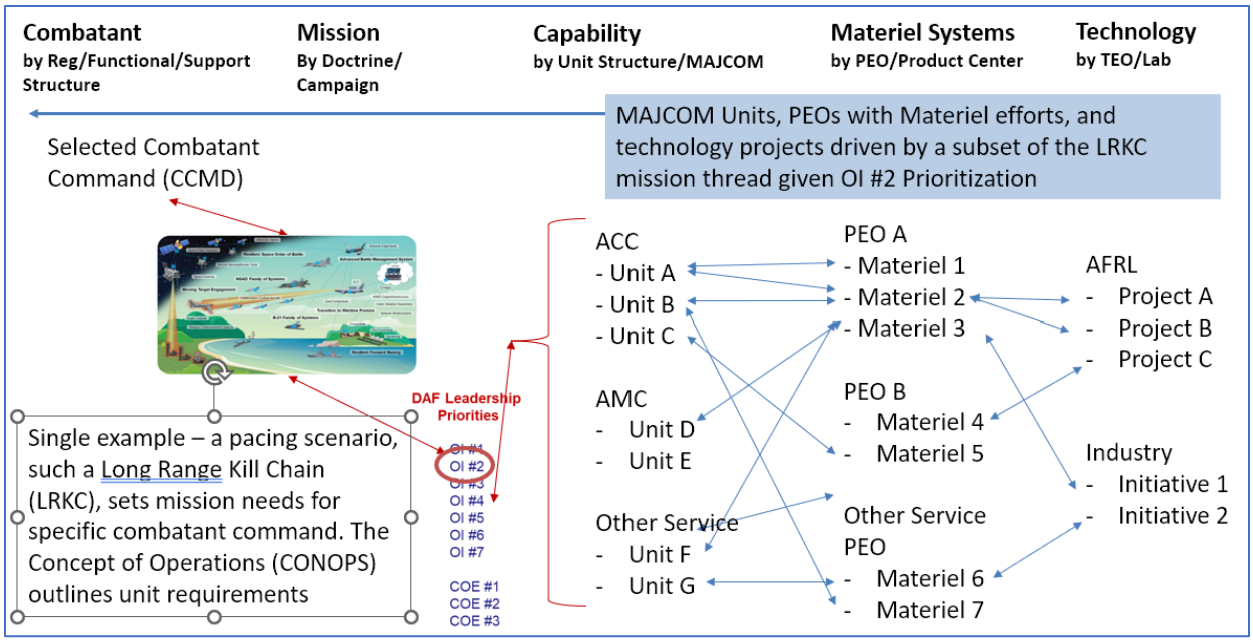

Figure 4 – DAF Operational Imperatives connection to PEOs & TEO through LRKC Mission

effort was successful, but like most expedited efforts, it was inefficient and likely not scalable and unlikely to survive beyond the senior leadership, such as Secretary Kendall, who championed the effort.

The Department of the Air Force recognizes this challenge and thus has started an institutionalization, or normalization, effort to normalize the OI effort within the corporate institutions. The challenge is that the OI concept needs to live past the POM/Budget (PB). The whole of the DoD Decision Support System (D2S2) will be affected as the FY24 budget goes into execution (the E in PPBE), the PEO/TEO expend those funds within the broader Acquisition Process, which includes research, development, production, and sustainment of systems. Finally, the OI process skimmed over the Chairman of the Joint Chief (CJC) requirements process known as Joint Capabilities Integration and Development Systems (JCIDS). The three decision support systems, PPBES, Acquisition Systems, and JCIDS are known as the "Big A," the acquisition process for capital investment. What industry would call CAPEX or capital expenditures?

If one googles McKinsey, which "is consistently ranked as the #1 most valued brand in the consulting industry,"[15] and reads their recent articles on capital expenditure, they are filled with references to portfolio management. You quickly get the point that portfolio management on capital programs and projects is an essential approach to managing capital investments. McKinsey's "Capital Excellence" discussion on deploying best-in-class thinking notes on how to

[15] ManagementConsulted.com 24 July 2023 Top Consulting Firms of 2023 updated May 20, 2023

deliver across the value chain. They discuss the need for a "rigorous, holistic methodology enabled by digital and agile techniques … align(ing) capital strategy, optimize portfolios, …ultimately grow value for all participants in the value chain and build teams with the right skills to manage complex workstreams." McKinsey claims 15-30% average capital cost savings, 2-4 point average uplift in ROIC, and ~30% typical reduction in project schedule timeline. [16]

Can the DAF Operational Imperative effort successfully be integrated, and normalized, into the current Big A decisions support systems (D2S2) and the DAF corporate structure? Not likely if the focus continues to be on programs. The D2S2, except planning, has a focus on programs. Capability development documents are written to specific needs for a single materiel system. POM/Budget/Execution is focused on capital funds for a program, and acquisition and much of sustainment is focused on programs. The focus is not on the materiel systems, the B-52 or the F-16 as a materiel systems family, but on the current investment funding for a particular capability change tied to one or more investment lines in the budget. A program for DoD is how capital investments are aligned across the D2S2. The Operational Imperative was mapped back to specific programs to identify where funding was needed, but the concept was to look at the "imperative" operational capabilities needed for the INDOPACOM[17] theater. Without the "bolted on" OI efforts, the OI view will get lost in the current D2S2 bureaucratic processes.

Need for a Multidimensional Portfolio Management Pilot

As noted in our NPS paper, building an Enterprise Decision Support Structure and Model would be complicated. The UMD research team aims to build an example model using notional data and evolve various analytical decision tools using a minimum viable product (MVP) approach. As identified in the NPS paper, three major challenges must be addressed.

What is in the Portfolios: Need to capture what makes up the portfolio types and what the taxonomies are, the reference schema. This will allow for alignment.

Network Schedule: Need for project, program and portfolio level network schedule model(s) on all materiel systems[18] which extends out to operational units and mission needs and back to technologies evolution. This modeling generically is referred to as Model Based Programmatics (MSProg), as it is planned to capture a wide variety of programmatic data.

Cost Estimate Range and Challenge[19] Drives: Need for capturing challenges so cost and schedule models can be "challenged informed" to improve decision making.

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[16] https://www.mckinsey.com/capabilities/operations/how-we-help-clients/capital-excellence, 24 July 2023

[17] INDOPACOM stands for Indo-Pacific Command. Officially it is United States INDOPACOM, thus USINDOPAUCOM is the acronym. INDOPACOM is often used to refer to the commands area of responsibility, which includes India, China, Australia, and the surrounding area.

[18] The phase materiel system is used to cover not just weapon systems programs but also those systems that have already been delivered and might not have a current investment program. It is meant to cover all materiel, and we use materiel with an "e" to designate military material.

[19] In the NPS paper we used Risk. We have moved to use Challenges, which are broader than risk to include constraints, assumptions, issues, risks, and opportunities (we use the mnemonic CAIRO)

Portfolio Pilot Structure

When budget/POM investments create active programs, the acquisition communities understand the technology and materiel system structure. What was found with DAF Operational Imperatives is the importance of material systems in sustainment and often our allies' systems. Second, the PEO structure along with the whole D2S2, is too focused on the capital investment per each program. Those "program" executive offices need to become Portfolio Acquisition Executives as recommended by the Section 809 panel and noted in recent House report language. What needs to be added is a governance breakdown structure (GBS) above the program-level WBS. The taxonomy would be an extension of the program-level organizational breakdown structure (OBS). The OBS is matrixed with the work breakdown structure (WBS) to create management levels below the project level, known as the responsibility assignment matrix (RAM) or control account structure, which is a schema created in the 1960s by DoD for performance management across cost, schedule, and technical performance parameters. Technology is also broken into a technological structure that is also well understood and doesn't initially need to be mapped into the materiel systems.

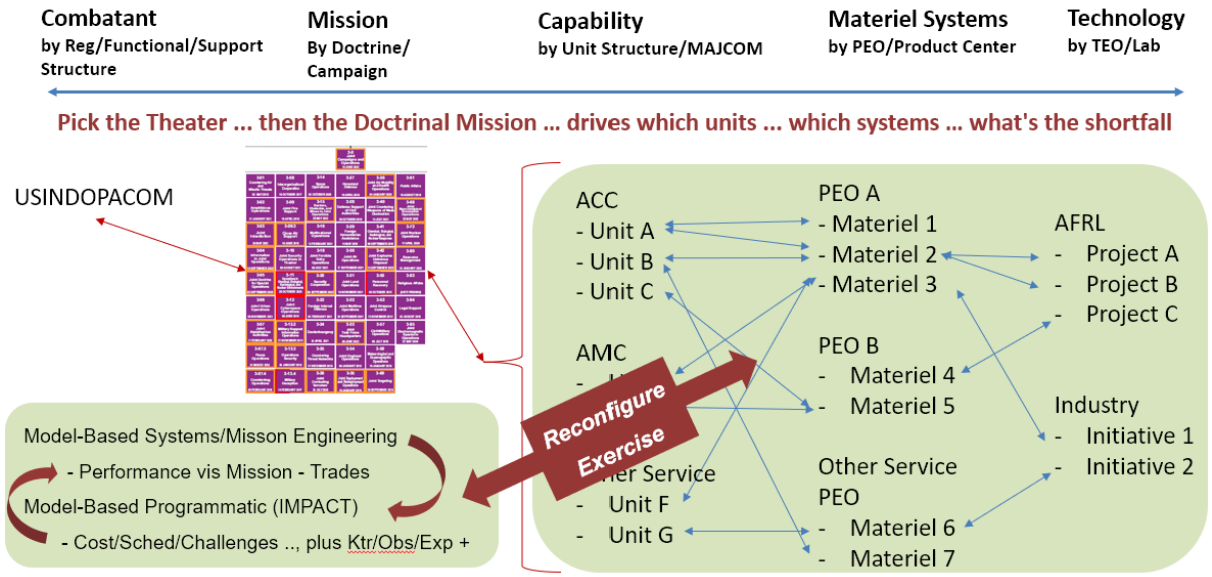


Figure 5 Multidimensional Portfolio Pilot – Notional Alignment with Decision Tools

Mission and Operational Unit portfolios have made it harder to find alignment structures within the capital investment structure. The requirements process, Joint Capability Integration and Development Systems Development (JCIDS) has a broad DOTmLPF-P framework, but the focus tends to narrow quickly to the capability requirements documents which is influenced by the program focus when we get into the capital investments. Missions are structured by the CJCS Doctrine structure and the Universal Joint Task List (UJTL). Those tasks get assigned by combatant (regional, functional, support) commanders to service and 4th estate operational units, think fighter squadron or a naval strike group. The structures have less clarity in the capital investment part of the D2S2 and have not been mapped back to the materiel or technology structures. Second, there is no OSD/Service portfolio management of these taxonomies,

missions or operational units, which provides a prioritization. The DAF OIs provided this critical prioritization, which influenced the POM/Budget. See Figure 5.

Network Relationships across Portfolios: Once the basic structures are understood via taxonomies, the next step will be to build multidimensional ontology structures to align the various portfolios. The complicated nature will drive an ontology that will take each taxonomy a step further by providing added layers to relationships that take each taxonomy outside the portfolio's domain. With these relationships, a network can be built that considers time a network schedule. The capital investment process is linked to the annual POM/Budget process; thus, timing is a key attribute that needs to be understood. The project, programs, and portfolio managers understand the critical information provided by a robust network schedule. The key is understanding the critical path through the schedule to inform when investments need to be made and where mission success can be accelerated through selected investments. The information provided will be key to decisions that need to be made within each portfolio and across the enterprise portfolio. The model will extend out to combatant commands and their exercises in which new capabilities can be tested and incorporated into operational plans.

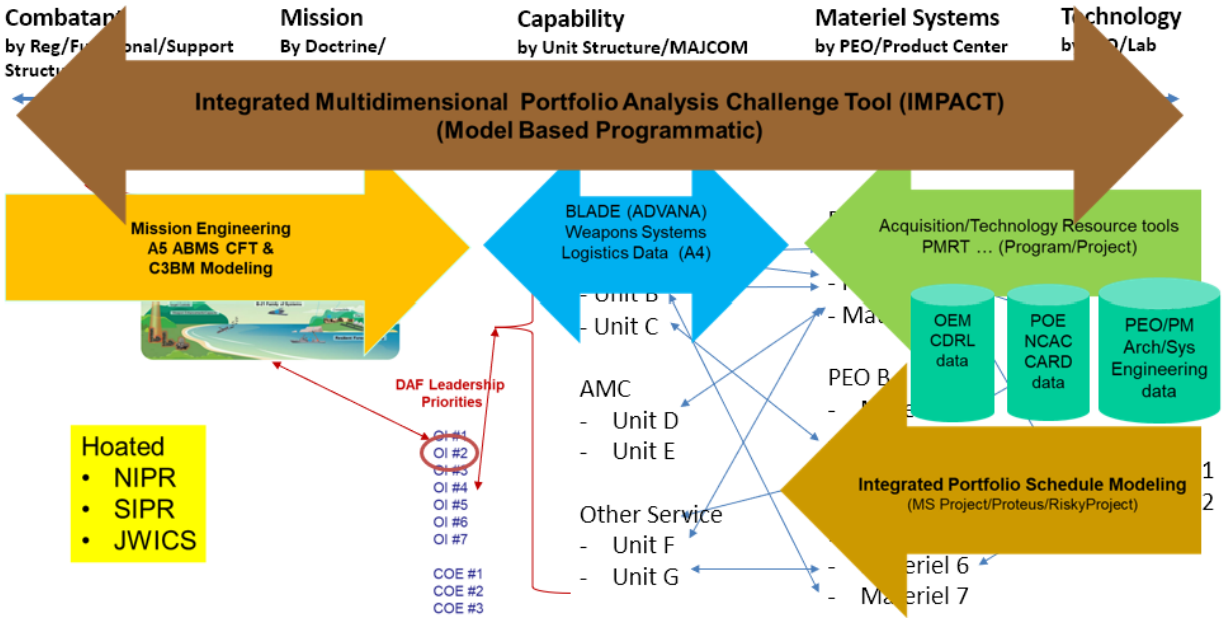
Challenge Informed Decision Making (CIDM): With the structures built and aligned and a network understood, we must understand how uncertainty affects the analysis. Depending on how the baseline has been set, those uncertainties can be issues today or risks/opportunities in the future. We also want to understand the constraints, external factors, assumptions, and internal factors that have affected the baseline that is being managed. The acquisition community often tracks risks, but only qualitatively and not quantitatively. The quantitative is needed to inform the decision model, whether that is a schedule risk analysis that informs the critical path or a technical performance measure likely not to meet the value in performance constraints/assumption. The concept of a Challenge Informed Decisions Making (CIDM) is a derivative to the NASA Risk Informed Decision Making (RIDM) (NASA, 2010)

In general, any of these challenges identified is workable, but the combination is a considerable effort. The pilot will allow for the creation of near-term products for portfolio management for the related technology projects, the PEO programs, and the operational units. The OIs have focused on numerous mission threads that cut across the various OIs, so within a pilot structure, the effort should start with a narrow focus, such as a key pacing scenario, such as a subset of the long-range kill chain, within a single OI. This will allow for near-term minimum viable products (MVPs). The second goal should be to explore the multidimensional portfolio concept as a normalization path and build corporate-level decision tools. An initial name for the decision tool has been coined as IMPACT, the Integrated Multidimensional Portfolio Analysis Challenge Tool. A tool that considers the challenge, a broad term for constraints, assumptions, issues, risks, and opportunities, and provides an integrated analysis of data across multidimensional portfolios.

Additionally, the pilot would provide the opportunity to build infrastructure within a PEO and across the DAF by utilizing the department's expanding advanced analytics capabilities. The models will need to run at the Secret and Top-Secret levels. Data needs to flow up from unclassified to Secret into the Top-Secret level. This will allow for a complete picture, not inhibited by security level, to be available for analysis.

The initial pilot can be expanded to include either or both multiple mission threads and multiple OIs. University of Maryland Project Management Center of Excellence's current efforts teamed with UMD s Applied Research Laboratory for Intelligence and Security (ARLIS), a DoD University Affiliated Research Center, provides a flight follow and at times flight leads with a notional unclassified data set and modeling using the same tools. The unclassified model will be used to create guidebooks, develop training, and prepare for the eventual use of artificial intelligence, natural language processes, and other advanced analytics tools as data sets expand.

The proposed data scheme, see Figure 6, shows that within the materiel and technology portfolios, data is already collected in the Program Management Resource Tool (PMRT) as well as the contractor(s), the original equipment manufacturer (OEM), data from official data deliveries to internal data as well as government data such as the Cost Analysis Requirements Description (CARD) and Program Office Cost Estimate (POE) or the service level non-advocate cost assessment (NACA). The PMRT data is available, in general, to the enterprise, but other specific program/contract data submitted, or government development estimates are generally summarized for the enterprise. There is considerable concern among data developers, whether



from industry or within the government, that data needs to be restricted. A pilot effort can find a balance between data transparency and data security.

Figure 6 – Operational Imperative PfM Pilot – Data Alignment and Decision Analysis

Using system engineering tools, mission modeling will model the Command, Control, Communications, and Battle Management (C3BM). Within the Materiel Systems and Technology portfolios, an Integrated Portfolio Schedule model would be developed to link all programmatic efforts within one portfolio and across the various portfolios (PEO programs and TEO projects). A network schedule would be built for the first time with specific relationships across programs/projects across PEO portfolios with relationships to operational units and combat command exercises (see Figure 7). This is beyond the data collected today. Some PEOs

create roadmaps, typically Gantt charts, which do not capture the predecessor/successor relations

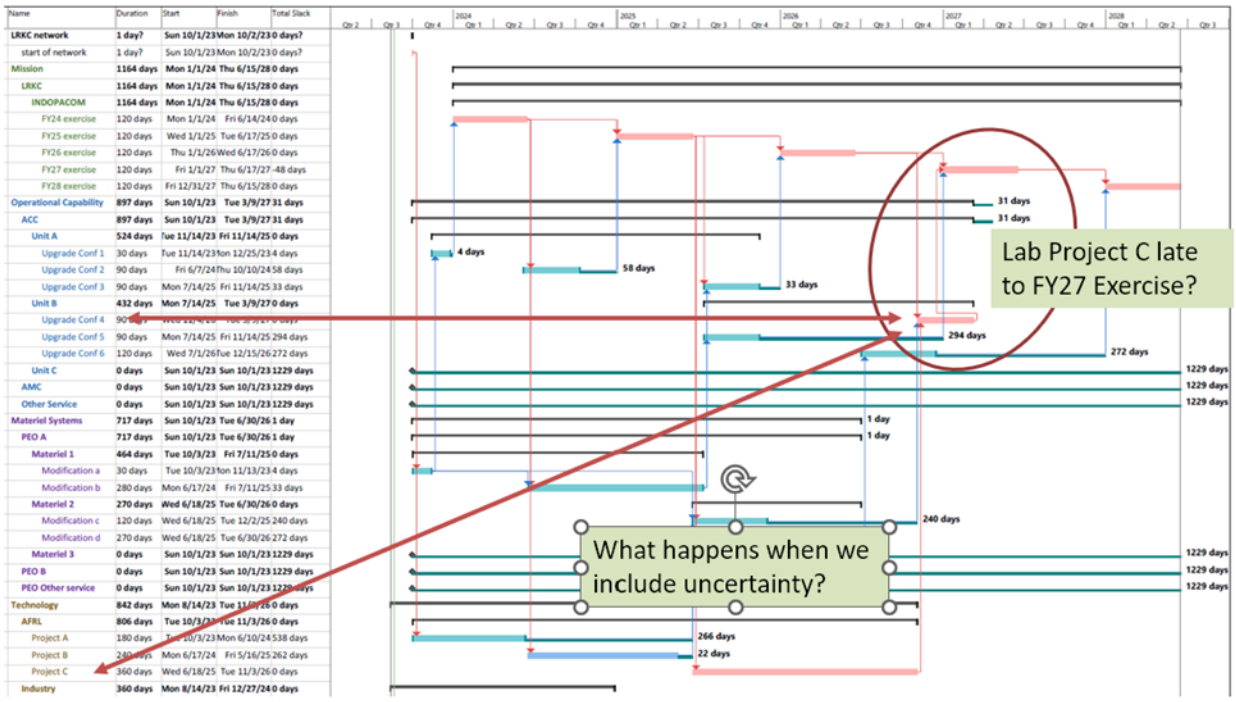


Figure 7 – Notional Network Schedule across Four Portfolio Dimensions

nor allow for determining critical paths or understanding challenges.

The Basing & Logistics Analytics Data Environment (BLADE) data will connect the mission model with the programmatic, which is already consolidating operational unit-level data. The portfolio schedule model is extended across the four portfolios, creating an alignment schema across the enterprise. Overtop of all of it will be the Integrated Multidimensional Portfolio Analysis Challenge Tool (IMPACT). Based on the network schedule model loaded into industry best practice risk management analysis tool connected to an industry Business Intelligence (BI) tool. The need for new coding will be limited so IMPACT can be built quickly. The combined tool set is already used within NASA and has an open data architecture allowing for the utilization of any BI/AI toolset. With challenge data, those constraints, assumptions, issues, risks, and opportunities, captured and aligned with costs, schedule, technical and operational units, and mission data, there will be a broad capability for supporting quality decisions with IMPACT.

Conclusion

After 15 years of designing a monolithic capability portfolio structure, it is time to explore a multidimensional approach linked to DoD primary functions in its unique value chain. The individual tools and techniques are readily available, the technical challenge will be alignment and integration of the portfolio structure and data. The more significant challenge is leadership focused given the cultural change of moving from programs to portfolios. The agile approach is key to mitigating the challenges. Creating the initial Minimum Viable Products (MVPs), and continuing to evolve them monthly with input from key stakeholders across the portfolio dimensions will be key. With an initial limited OI approach that progresses, moving to other OIs

to show broader implementation can be added as the pilot is successful. The goal would be to start providing data early that informs the initial PEO and OI Team about key relationships that influence decisions. Then to have the DAF corporate structure using the IMPACT analysis and the data set in general to influence enterprise-wide decisions to a point in which the pilot provides a tipping point for organizational change. Eventually, the approach, if successful, can move across the DoD.

Author Biographies

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