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Defense Market(s): A Relook at the Explanatory Power of Several Economic Schools of Thought while Viewing the Defense Department as a Monopsony Firm

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Defense Market(s): A Relook at the Explanatory Power of Several Economic Schools of Thought while Viewing the Defense Department as a Monopsony Firm

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Abstract

The paper proposes that the current emphasis on commercial practices ignores the challenges with price theory and competition and is a red herring for useful defense market analysis. Instead, we propose the use of New Institutional Economics, Public Choice, and the visible hand concept of the firm as a better economic model for assessing the market. Popular theory puts an emphasis on orchestrating a viable commercial market for defense products. This paper updates the premise that the defense unique market should not be compared to commercial markets and proposes a model that looks at the Defense Department as a monopsony firm within a complex government-influenced market. A useful economic model would balance improving efficiency by considering transaction costs within an aligned and integrated decision support system of institutions (requirements generation, resource allocations, and acquisition management) within the DoD as a firm. Creating an economic model is proposed using economic frameworks combined with current proposals to move the DoD from a program to an aligned portfolio management structure. A viable economic model should create a method to enhance understanding of how institutional changes affect the overall firm's performance in meeting its value chain strategy, given the market constraints.

Introduction

Concerns with the U.S. Military-Industrial Complex performance persist. The specific concerns, whether reaching back to Eisenhower's "unwarranted influence"[1] in the 1950s, or Operation Illwind's prosecution of 60-plus industry and government officials for procurement fraud in the 1980s,[2] or Gansler's "coordinated policies aimed at creating a viable market economy" in the 1980s and 1990s, or an example of the most recent concerns with the Center for Strategic & International Study on the U.S. Defense Industrial Base, "Isolated from the U.S. Economy," all have an overtone that the United States defense market is broken. The challenge is that we have no equal comparison to measure by, as our allies significantly rely on the U.S. defense institutional structures, and our adversaries utilize non-democratic institutional structures. We also have no economic models that are congruent with reality or meet what is generally accepted as properties of good models for the defense industry, especially the defense-unique items (Gabaiz, 2008). There appears to be no accepted set of economic

[1] https://www.archives.gov/milestone-documents/president-dwight-d-eisenhowers-farewell-address
[2] https://www.fbi.gov/history/famous-cases/operation-illwind

theories that have been put into an economic model for the Defense Market that is being used to guide effective and efficient changes in the institutional rules.

Over two decades ago, two economic schools of thought, New Institutional Economics and Public Choice, were proposed, which showed promise in illuminating what influences the Defense Market, providing policy insights, and could be used to build a good economic model (Driessnack, 2005). The institutions that govern the Military-Industrial Complex performance have continued to evolve over the past 60 years since the general framework of the current system was created in the 1960s. A significant change came with the consolidation of federal and defense contracting policy into a unified Federal Acquisition Regulations (FAR) in the 1980s, along with other centralization and consolidation efforts, such as creating a defense-wide plant and contract management with the Defense Contract Management Agency (Sapolsky, 1999).

Many policy efforts, including improving technology transition, seek free market mechanisms. Peck and Sherer, in the early 1960s, demonstrated that the defense market was significantly different from the commercial markets. Differences that are fundamental to the Defense Market institutions. Since the 1960s, even though there has been an almost continuous effort of reform, the sense is the U.S. Military-Industrial Complex is failing. Recent articles have titles noting the "crumbling foundation of America's military," noting the failed weapons and ammunition production to supply Ukraine. Others call for "immediate mobilization of a national industrial base capable of rapidly producing lethal, software-enabled hardware at scale" (*Strategic Edge: A Blueprint for Breakthroughs in Defense Innovation*, 2025).

Figure 1. Section 809 Panel Dynamic Marketplace Framework

The Constraints of a Dynamic Marketplace Framework

Recent articles and reports, such as *The Future Foundry, A New Strategy Approach to Military-Technical Advantage*, have interesting graphics which seem to imply a problem in the defense industry, such as the USAF Fighter Force Composition, and note that in the 1950s, the

Air Force employed 14 different fighter aircraft and employs only four today. It shows the production of hundreds of B-17s as if that is the goal. Technology today allows a couple of B-2s with advanced weapons to do the same, and more precise damage to our enemies with less loss of life on both sides. The report notes, “Clearly, this failure to change is not due to a lack of proposed solutions but is the consequence of inadequate political will and ineffective execution. Given broad acceptance among acquisition and industry professionals that the current system is flawed, endless recommendations for reforms, persistent bureaucratic intransigence, and a lack of meaningful change, how can the Department of Defense establish a reliable approach to generating and maintaining technological superiority in the 21st century?” (FitzGerald, 2016).

Palantir’s paper, *The Defense Reformation*, notes the defense companies by market cap, noting that Palantir’s Market cap is higher than any of the “traditional” hardware vendors. But they are a software company with revenue of $2.225 billion (CY23) with a market cap of more than $173 billion (Sankar (2024). It is in business that the Section 809 Panel would say is either Readily Available or Readily Available with Customization (see Figure 1). There are many industries that are in these categories, but they are not likely to be in with the unique defense systems, the platforms (unique aircraft, ships, tracked vehicles), nor the unique electronics, sensors, software, or weapons they carry. Comparison across the Section 809’s Marketplace Framework should be done with caution.

A good example is Space X, with above $8 billion in revenue in CY23 and a market capitalization of more than $100 billion. Like Palantir, these are companies that are clearly participating in the commercial market and gain their market capitalization values from the potential commercial revenues in the future. They may be earning revenue and insight into technologies with their DoD and overall government contracts, but their valuations in the commercial market are from their potential reviews and profits within the civilian markets worldwide. Using these companies as a comparison to the traditional defense-unique companies can be very misleading.

Fallacy of The LAST SUPPER

Before we address some of the challenges that need to be addressed, we need to address the “The Last Supper” fallacy. The fallacy is that the defense market is broken because of the consolidation that happened post a 1993 dinner for two dozen of the military’s biggest contractors hosted by then–Defense Secretary Les Aspin. This is known as “The Last Supper.” It even has its own Wikipedia page, noting that the recent end of the Cold War had raised calls for a peace dividend, and Perry (the Deputy SECDEF) warned the defense industry that it would need to consolidate to survive upcoming budget cuts. The number of prime defense contractors in the U.S. was projected to decline from 51 to five in the following years (see Figure 2; DoD, 2022). The figure shows the consolidation. But is this a problem? Today, Raytheon, or RTX, derives only 59% of its revenue from defense, while Boeing gets 44%. Overall, the top five defense contractors together account for less than 20% of the defense budget. In comparison, in the broad retail sector, three companies—Walmart, Amazon, and CVS—command 50% of the market. Senator Roger Wicker, who introduced the Fostering Reform and Government Efficiency in Defense Act (FoRGED Act), wrote a companion article*, Restoring Freedom’s Forge, American Innovation Unleashed* (Wicker, 2025). It references the “Last Supper” by referencing Palantir’s *The Defense Reformation*, whose first section is named The Last Supper and Great Schism. The section starts by stating, “the most important consequence of the Last Supper wasn’t a reduction in competition in the Defense Industrial Base, but the decoupling of commercial innovation from defense and the rise of the government monopoly.” The underlying

message is the implication that the consolidation of the defense industry and the lack of companies that do both defense and commercial business is an indication of a “great schism.”

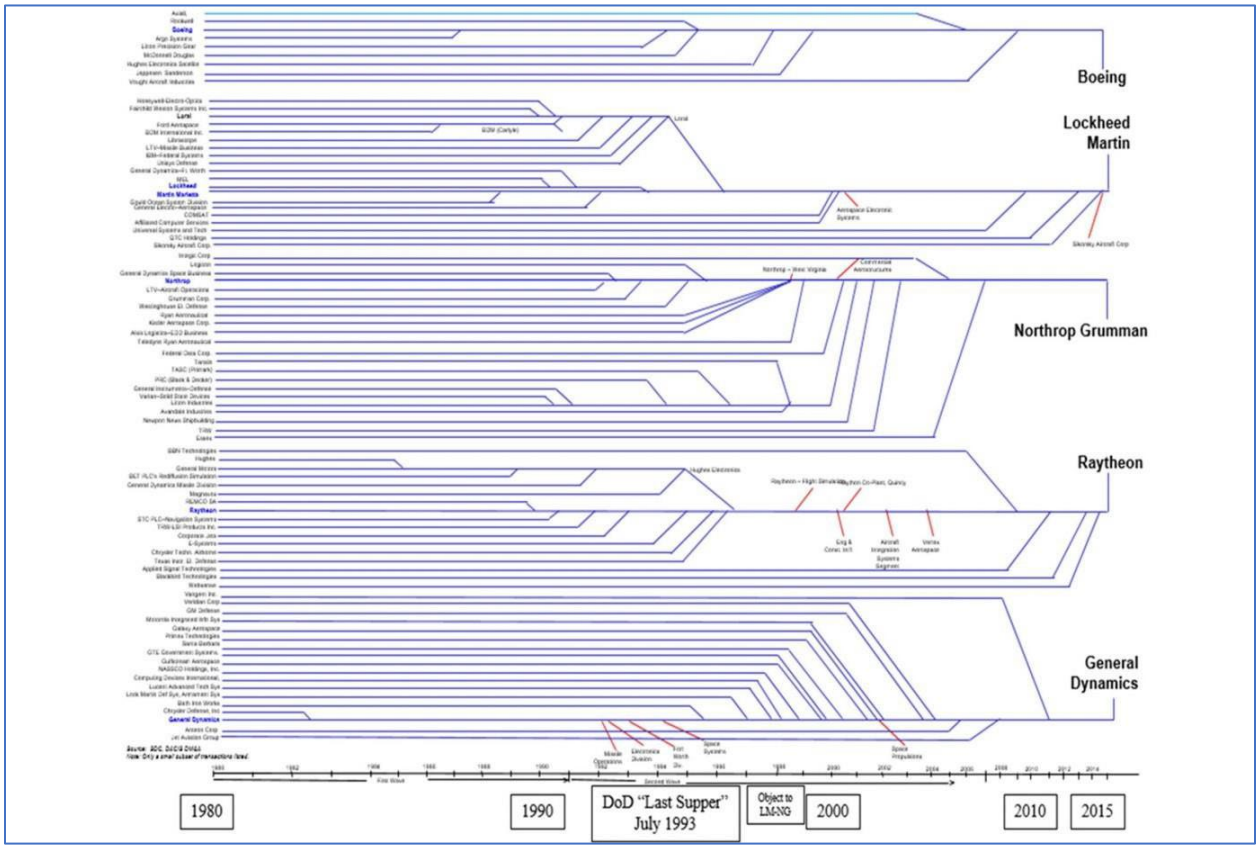

Figure 2. Defense Industry Consolidation

The Palantir paper states, “Before the fall of the Berlin Wall, only 6% of defense spending went to defense specialists—so-called traditionals. The vast majority of the spending went to companies that had both defense and commercial businesses.” The conjecture is that all those tedious regulations have made working in the national interest bad business. But is that really a problem? Most industries have consolidated, some, like Sears, which used to sell houses, are gone. Today, the top 10 companies get less than 20% of the total defense budget, and two of the top 10 are medical-related companies (Humana and Cencora). The landscape has changed, it doesn’t mean the market it broken. Look at the various global markets' share of each industry’s five largest firms. Defense doesn’t even make the list. Later in this paper, we will discuss how that small number of primes uses a vast market of subcontractors.

The National Defense Industrial Association (NDIA) reports the defense industry is made up of almost 60,000 companies with 1.1 million U.S. workers (Stewart et al., 2023). The 2021 number is a reduction of two-thirds from the 3 million workers in 1985. Again, this is reflective of other non-defense industries. The Industrial Production Index (see Figure 3) is higher in 2021 than is 1985, with more than half the labor removed! That production index doesn’t indicate an industry in trouble. The ups and downs reflect the volatility in the defense spending, which, if one followed “The Last Supper” theory when the post 9/11 Wars came why didn’t the number of prime contracts expand? The fact is, they kept consolidating.

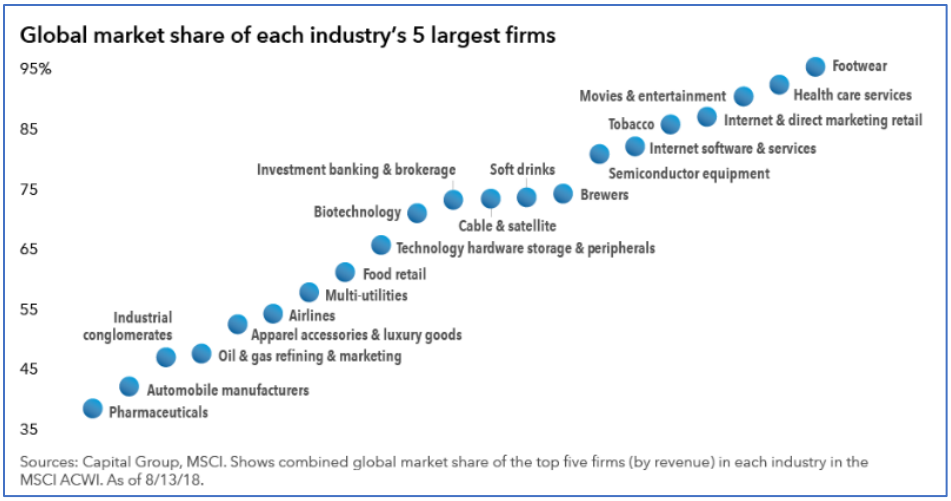

Figure 3. Global Market Share of Each Industry's Five Largest Firms

Industry Consolidation is Not the Problem

The Congressional Research Service, which publishes updates to its U.S. Defense Industrial Base (DIB) report (see Figure 4) notes up to World War II, the permanent DIB was operated by the government as arsenals and shipyards, and in "times of conflict, the armed services depended heavily on private contractors." Post World War II, "the wartime industrial base was not entirely dismantled, and the complex has been growing ever since. Government-operated facilities produced less than 10% of U.S. Defense equipment by the time President Eisenhower's speech on the military-industrial complex in 1961 (Congressional Research Service [CRS], 2024).[3]

Figure 4. U.S. Defense Production, 1947–2024

In the 1990s, the output of the commercial DIB decreased by approximately 35% and was sold as driving the infamous "Last Supper" in 1993. But as one can see in Figure 5, the next war, the war on terror increased expenditures, which decreased again with the Budget Control Act of 2011, but again, the shift to the great power competition has the expenditures growing again. But the "Last Supper" has not been reversed, which one would think should have happened, given the reasoning behind the "Last Supper" consolidation.

[3] The Industrial Production Index (IPI) is an economic indicator that measures the real output of the industrial sector in the United States.

Beyond the cyclical funding, the market is driven by a monopsony, highly regulated public sector, and the products are subject to restrictions on export and usage which are driven by conflict. The defense-unique part of the market is not a market based on competition and prices. Additionally, the DoD Small Business Strategy, January 2023, notes the number of direct awards from the DoD to more than 25,000 companies, which doesn't account for small businesses that work for larger prime vendors. It appears from this data that the market is robust. In Fiscal Year 2021, small businesses made up 73% of all companies that did business with the DoD, and 77% of the R&D companies. Moderna was a small business with DARPA and a grant recipient for MRNA vaccines. That turned out to be critical for the fight against COVID-19. A success story on numerous fronts relative to public policy and an indication how a small business can grow, as the company had over $7 billion in revenue in 2023.

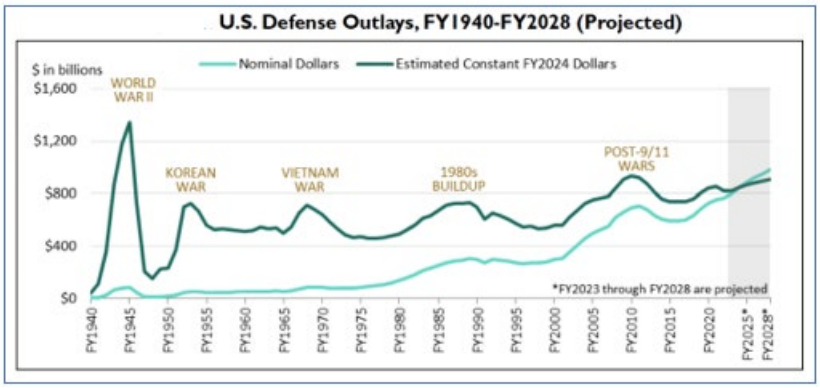

Figure 5. U.S. Defense Outlays

The other part of the defense-unique market is government-owned plants. Government-owned production and maintenance facilities, as well as ranges, test facilities, and federal-funded research and development centers (FFRDCs). Do we need more commercial or to go back to even more government-owned arsenals and shipyard models? The extent of these facilities is explained in the Congressional Research Service Report (CRS, 2024). Then there are the strategic National Stockpile and Petroleum Reserve. How do these fit into the calculation? The overall defense influence on many markets is complex and will not be solved by simply relying on commercial emphasis.

Another factor is the Defense Production Act of 1950, which allows the president to require private businesses to preferentially accept certain contracts and orders, as well as allocate materials, services, and facilities. It allows the president to provide loan guarantees, loans, purchases and purchase commitments, grants, and other financial assistance directly to private businesses (CRS, 2024). Additionally, the direction on defense needs appears in a law, called the National Defense Authorization Act (NDAA), which is often filled with thousands of changes each year. Not a commercial market situation.

"If the DIB is too small, it will be unable to supply all the materials, products, and services necessary to accomplish U.S. strategic objectives, and the military may lack the ability to execute its assigned missions. On the other hand, an industrial base with excess capacity could impose unnecessary financial costs on the U.S. government, requiring cuts to other programs, increased borrowing, or higher taxes. An oversized DIB may also distort the functioning of the country's market economy by diverting resources from other commercial applications"(CRS, 2024).

Market Below the Prime

If the major firms are doing their jobs, then the market below the prime contractor would be healthy. That does appear to be the case. It is not perfect, as with any market of subcontractors and vendors, but overall, with more than 60,000 vendors, it appears healthy. Again, there are some unique challenges within the defense market.

The DoD does need to be concerned with the industrial base beyond just the primes, with foreign intervention and overall stability. A proactive government policy toward high-technology industry mergers and acquisitions may be misguided due to the difficulty in predicting acquisition outcomes (King, 2003). A comprehensive F-22 Case Study looked at the concerns of the consolidation of the DIB and whether enough competition exists between remaining firms to maintain needed cost reduction and innovation. The study examined competition in the U.S. DIB by performing an in-depth case study of Lockheed Martin and the F-22 program that considers multiple tiers of the industrial base. The study found that defense firm specialization has led to outsourcing practices and arguably a more robust U.S. DIB (see Figures 6 and 7; King 2007).

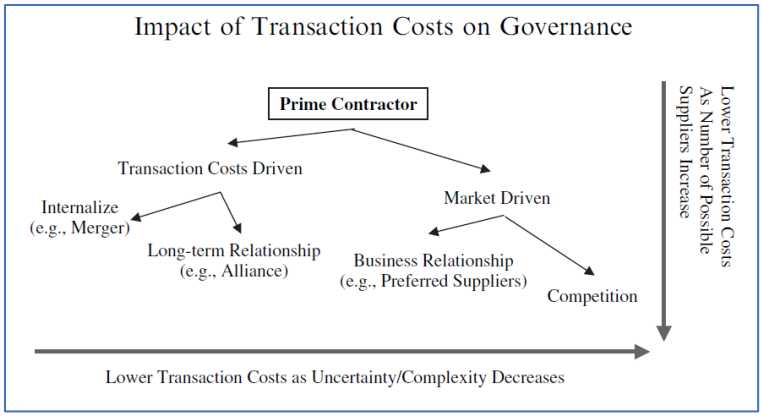

Figure 6. Prime Contractor

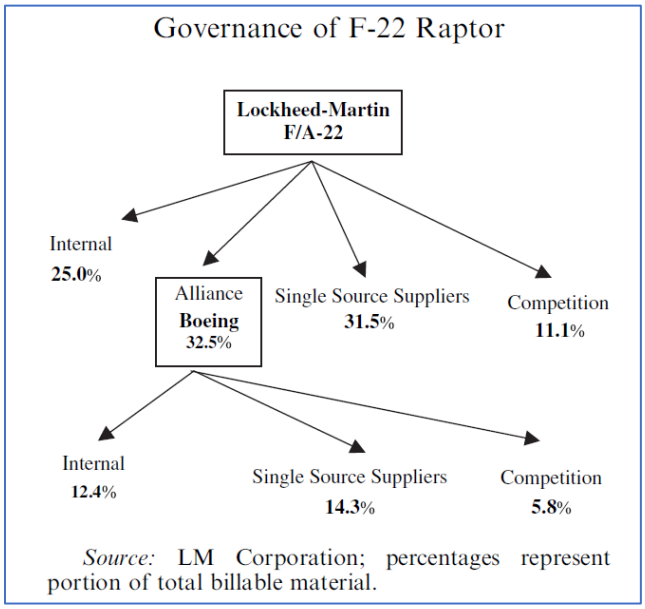

Figure 7. F-22 Prime Contractor

Below the prime contract, the transaction cost economics within the defense-unique market should hold with managers choosing the least costly method of organizing. Market exchange is generally considered more efficient than internalizing transactions, as it allows parties to a transaction to be competitively selected and drives the most efficient pricing for buyers and suppliers. However, Williamson suggests that market failure precludes market exchange and drives internalization of exchanges within a firm. Williamson originally outlined five situations that involve market failure:

1. **Bounded rationality**: Human beings tend to search for adequate and not optimum solutions.
2. **Uncertainty/complexity**: Conditions without readily discernible patterns or a manageable number of interactions that would facilitate decision making.
3. **Information impactedness**: Information asymmetry involving situations where one party is better informed than the other, making contractual arrangements difficult or expensive to verify.
4. **Opportunism**: Power imbalances that allow one party of a contractual relationship to pursue self-interests.
5. **Small numbers**: Reduced business choices resulting from limited quantities of either buyers or suppliers.

Later, a sixth market failure involving "**asset specificity**," or a condition created from recurring transactions that create progressively stronger bilateral relationships, was identified.

What this outlines is why Oliver Williamson won his Nobel Prize in 2009. The theory is that transaction costs can drive decision makers to form long-term relationships, which are firms. This would be why some firms buy other firms, to lessen the transaction costs. Or what concerns some as industry consolidation.

Williamson uses the term "information-impactedness," which refers to unequal access to information. Thus, Williamson takes issue with the idea that a firm is just another type of market. He emphasizes governance, as Alfred D. Chandler would in *The Visible Hand, The Managerial Revolution in American Business*.

Overall, the defense-unique market is highly influenced by national political considerations. This is where Public Choice Economics could potentially provide some insight. The federal and state governments provide guardrails for the commercial market to live within; those guardrails are on steroids when it comes to the national defense and the defense-unique market.

What Constraints Should be Considered?

The defense market has several unique characteristics, which pose unique constraints that need to be considered when creating an economic model to assist with understanding how changes will affect the market.

Constraint 1: Defense is Not a Single Market Sector

The defense market is not a uniform sector, but a diverse set of goods and services that are bought by the sovereign government, which often creates a monopsony (single buyer) environment in which commercial market forces, such as price theory, don't work. The defense market is a microcosm of many markets that span almost every market type. It is hard to find a market where defense is not participating and often is a significant player. Each marketplace has different frameworks with different dynamics. They often interplay with each other, as

outline by the Section 809 Panel. The 809 Panel created a simplified model of the dynamic marketplace framework for defense (see Figure 1). The “Readily Available” with or without “customization” is different than the “Defense-unique.” One needs to consider whether these frameworks should follow the same institutional rules.

With “Defense-unique,” the federal government is a monopsony buyer with exceptional control as the sovereign. The DoD even controls the foreign military sales, which is based on the fact that it is the sovereign and makes the rules and can change them at any time based on national security challenges. Plus, the market demands in this sector are determined by hostile actions of other governments and actors, for which it is almost impossible to predict how long they will endure the losses of materiel systems and the consumption of consumables. We need to be clear when talking about the Defense Marketplace, which framework we are discussing. For this paper, the focus is on the defense-unique framework. The other two markets can significantly use commercial best practices, and in many cases do today. The Readily Available with Customization can fall into either of the camps.

Constraint 2: Defense Needs to Meet the Public Policy Objective

In the readily available, with or without customization, the DoD often subjects itself to the same contract rules as private parties. Although there are exceptions set forth in federal statutes, regulations, and the Constitution to meet public policy objectives, such as small business goals. The challenge is these rules often don’t allow the federal government to take full advantage of commercial practices. Due to its special status as the sovereign and considering the statutes and regulations that apply to government contracting, government agencies are not in a position to take full advantage of the practices of the private sector. For example, agencies generally may not award contracts based solely on consideration of a company’s prior performance or enter into long-term strategic agreements. One needs to recognize the public policy challenge, but should not see it as a flaw in the performance of the market. Adjustment can and should be made, and often they are when national security is involved. In many cases, options are available to Defense officials when mission requirements need to truly outweigh public policy objectives. The level of adjustment is a balancing act which in the U.S. democracy will only be solved within the political system.

Constraint 3: Lack of a Stable Price Mechanism

Generally, there is a relationship between stable prices and stable markets. Hayek notes “because all the details of the changes constantly affecting the conditions of demand and supply of the different commodities can never be fully known, or quickly enough be collected and disseminated, by any one center, what is required is some [thing] . . ., which automatically records all the relevant effects of individual actions, and whose indications are at the same time the resultant of, and the guide for, all the individual decisions. This is precisely what the price system does under competition and which no other system even promises to accomplish” (Hayek, 1944, p. 36). Signals from changing relative prices are undoubtedly crucial and beneficial to economic decision-making (Issing, 2020). But, as noted by Peck and Sherer, “still much of the public discussion of weapons acquisition problems proceeds as if the terms ‘competition,’ ‘price,’ ‘buying,’ and ‘seller’ had the meanings they do in a market system.” Peck and Sherer were talking about the defense-unique market framework.

The instability comes in the demand for defense-unique products. The war in Ukraine with Russia is an example of the volatility in the defense market. As Lawrence Freedman, a professor emeritus of war studies at King’s College London, said in a recent article, “Clearly, I did not make the big call, which would have been to join those who had been convinced for some time that a big war was about to start. I was becoming increasingly persuaded of its possibility, but it still seemed to be such a self-evidently stupid move that I assumed that Putin

had better options." The Hamas attack on Israel is another example. These events are hard to predict if they will happen, and then harder to predict how long they will last or how they will proceed. Ukraine thwarted Russia's efforts to seize Kyiv, and instead of a quick engagement, the war, along with the consumption of equipment and consumables, greatly increased demand in the defense market (Eckel, 2023).

No equivalent commercial market sector is a good model for the defense-unique market. During the COVID pandemic, we saw many commercial market mechanisms, such as offshoring fail. The consequence drove people to buy industrial rolls of toilet paper for their house, as the situation was not predicted within the market. Within defense-unqiue, there is a much greater risk for such near-term market failures that need to be considered when modeling the market.

Constraint 4: Defense Sets Relatively Risky Program Baselines

The Government Accountability Office (GAO) has had DoD Weapons Systems Acquisition on the high-risk list (GAO-25-107743) since 1990. In 2025, the DoD areas were reported to have gotten worse. The report notes, "Legislation—such as acquisition reforms required by the National Defense Authorization Act for Fiscal Year 2024—has prompted the DoD to consider how to address structural barriers that impede its progress in making change, such as its requirements processes. Despite policies that provide increased flexibility, the DoD continues to struggle to rapidly deliver complex, software-driven weapon systems." Anybody familiar with weapons systems acquisition, the significant part of the defense-unique market, is not surprised that the area has been on the high-risk list since the report started.

Is DoD leadership and the acquisition workforce such poor managers, or is the nature of the market just risky? If we stop making inappropriate comparisons, maybe we should consider that the defense-unique market is very risky and one method to address that risk is to embrace it and manage expectations. One way risk is taken is to set program baselines, the cost and schedule, at a relatively high-risk level. The DoD Cost Estimating Guide calls for a confidence interval for cost and schedule but does not set a confidence level. It notes the estimator should have "documentation showing management's acceptance of the cost estimate including recommendations for changes, feedback, and the level of contingency reserves decided upon to reach a desired level of confidence?" The Air Force policy, noted in AFI65-508, sets budget at the "mean of the program cost estimate distribution (typically 55%–65% confidence level)." A level of confidence that statistically guarantees significant cost and schedule overruns across a significant number of programs, which is exactly what happens. Why are we surprised by the outcome and characterize it as failure of the system?

There is no lack of understanding of how to estimate. The DoD and GAO have had a consensus on cost estimating best practices since the GAO published its first guide on the practice in 2009. The Air Force invented back in the mid-1960s, which the DoD adopted across the organization in the early 1970s, what has become the industry-wide best practice for performance management on programs, which is documented today in an International Standards Organization (ISO-21508) and American National Standards Institute (ANSI/PMI-006-2019) standard on Earned Value Management. Studies have shown the performance management technique, when implemented, is very effective. Many other practices, such as product teams, used widely in industry, evolved within the defense-unique market. Could it just be that the baseline by which we measure the market is optimistic, and that optimism is reflected in the results of the market?

A simple way to look at this is that the DoD starts 15 programs when they can only confidently afford 10. However, the out-year demand signal is so poor and unstable that it is not optimal to pick the 10 up front, but it is optimal to pick 15, set risky baselines, actively manage

the programs, and cancel those that do not work out. We don't know because we don't have a method of economically modeling the defense-unique market, and there is no comparison market.

The DoD as the Firm, the Key "Visible Hand" in the Defense Market

In *The Defense Industry,* when talking about the defense industry,Jacques Gansler suggested in the late 1970s "to attach all of these problems, the government must implement a set of coordinated policies aimed at creating a viable market economy in each sector of the defense industry." He was calling for a managed commercial approach, what Alfred Chandler coined in his 1977 book, *The Visible Hand, The Managerial Revolution in American Business,* the "Visible Hand." Gansler's focus was on turning to commercial firms, which has been an emphasis by many for the past 60 years. But what if we looked at the DoD as the firm and the institutional rules it uses within the decisions support system, the requirements, the resources, and the acquisitions institutions. How would it adapt its institutions? One could look at the Services and the 4th estate agencies as companies within a larger corporation. The Office of the Secretary of Defense (OSD) and Joint Staff (JS) would be the top corporate structure with a dozen or so individual companies following generally the same rules but allowed to make modifications for their unique sector of the business. Given that structure, we could start to model The Visible Hand with the goal to optimize value, just like every other firm that is formed to beat the Invisible Hand of the market.

Two decades ago, Driessnack outlined at NPS's 2nd Annual Acquisitions Research Symposium an "alternative approach using transaction-costs analysis and the explanatory power of the New Institutional Economics and Public Choice School" for the concerns with the U.S. Military-Industrial complex (Driessnack, 2005). Driessnack referenced the Harvard Weapons Acquisition Process Study by Peck and Scherer in the early 1960s, which outlines that problem with "the public discussion of weapons acquisition problems proceeds as if the terms "competitions," "price," "buyer," and "seller" had the meaning they do in a market system. Driessnack's prior articles (2003, 2004) outlined the challenges with a commercial market type approach within the weapons acquisition monopsony market when the government is the sole buyer. The weapons market also has a unique characteristic of extreme uncertainty in demand, which is well discussed Mark Bowden's recent article, "The Crumbling Foundation of America's Military" (Bowden, 2024), which captures a quote by D.r Bill LaPlante, then the Under Secretary of Defense for Acquisition and Sustainment, on the Ukraine conflict with Russia. "But the idea that we would be spending or sending to another country 2 million rounds of 155"—the howitzer shells—"I don't think was really thought through." And if someone had raised the possibility, the response would have been: "I don't see that scenario."

Dr. Jacques Gansler in his dissertation, *The Diminishing Economic and Strategic Viability of the U.S. Defense Industrial Base* (Gansler, 1978) outlines "the problem" as "The Department of Defense is a monopsonistic buyer with—in peacetime—a shrinking buying power. What is the 'best' form of its supporting industrial structure to get the maximum defense capability for the approved dollars, with the least adverse impact on the public, and what actions—if any—should it be taking toward achieving this form of the industrial base?" Gansler states, "the single criterion that should be use for optimization of the defense industry is managerial efficiency, but this optimization must be done with the very clear constraints of the following: allocative efficiency, surge capability, flexibility for downward demand, research and development advancement, minimum impact on the overall U.S. economy, labor stability." His solution came in seven categories, coordinated government policy, integrated civil and military business, creation of a real market at the subcontractor and supplier level, new international policies in the defense industrial area, integrated and improved production surge, making cost a major decision criteria for all actions, and finally make the institutional changes necessary to

achieve all of the above(Gansler, 1978). He had an opportunity to make his idea work when he was Under Secretary of Defense for Acquisition, Technology, and Logistics from late 1997 to 2001. Some changes were made, but is this really the answer for all of the defense market? Most large corporations have specific companies and divisions within those companies that are tailoring their institutions to the needs of the market. Can the answer come from a top-down set of policies or is the answer a more flexible system that allows more tailoring within the larger DoD firm!

Gansler, in a 2012 study on *Fixed-Price Development Contracts*, seemed to have evolved his thinking, noting, "When it comes to major development programs, there may be a good reason that the DoD has come to rely more on cost-reimbursement (as opposed to fixed-price) contracts. Unlike other DoD programs, MDAPs are often associated with a high level of uncertainty." The report also notes "agency theory, transaction cost theory (TCT), and incomplete contract theory provide a basis for understanding the advantages and disadvantages of cost-reimbursement and fixed price contracts." Unlike other DoD programs, MDAPs are often associated with a high level of uncertainty and "flexibility with regard to costs, schedule, and performance should be built into a contract so that trade-offs can be made as development progresses" (Gansler, 2012).

A more effective approach might be to focus on the DoD as a firm with various components that are tailored to the market it serves. In many ways, this is exactly what happens with the Government Services Administration (GSA) doing general buys, and more specific contracting happening within a particular subcomponent of the government. The DoD could consider the research done within firms to examine a better approach.

Model to Optimize the Visible Hand in Defense-Unique Market

Economic Theory for the DoD as the Monopoly Firm of the Defense-Unique Market

Two Nobel Prize economists, Oliver Williamson and Douglas North, note the lack of usefulness of classic rational choice and frictionless efficient markets as an effective model. Williamson provides a concept when "an outcome for which no feasible superior alternative can be described and implemented with net gains is presumed to be efficient." Not to say that government institutions around weapons acquisition can't be improved, but to compare them with commercial markets with price theory is the wrong model and benchmark. North discusses "incremental change" while understanding "path dependence is the key to an analytical understanding of long-run economic change" (Driessnack, 2003). A useful model would incorporate presumed efficient ideas and start with the current system.

Dixit, in his book *The Making of Economic Policy, A Transaction-Cost Politics Perspective*, reviews the principal agent problems in government through the view of transaction costs (Driessnack, 2005). "The hypothetical ideal with observable efforts and Coasean bargaining between all principles and the agent would be the first best. Respecting the information asymmetry but allowing all principals to get together and offer a combined incentive scheme would give the second best. If the principals cannot be so united, their Nash equilibrium is, in general, a third-best. In these formal terms, the result above says that the third-best outcome that is achieved has very low-powered incentives" (Dixit, 1996). The "low-powered incentives," which often do exist in government, are not proof of the inefficiency of government, but a recognition of the unique market environment. Bottom line, when judging the performance of a democratic, politically driven system, what "appears prima facie inefficient is in fact a reasonable way of striking a balance between the various interests, or multiple principles, given the transaction constraints." An alternative is a less democratic approach, which can be seen in the markets driven by competition and price, but as noted, that does not exist, nor will it exist, in the unique defense market.

Other views to consider include polycentric political systems and Public Choice approaches. These theories note that the "overall efficiency of any one part of the political system must envision the impacts on an overall political cost curve—not the individual political cost curse in any one section of the political systems." The noted challenge was to "embrace a more complete analysis utilizing New Institutional and Public Choice tools in a manner in which we can gain explanatory capabilities" (Driessnack, 2005). This can be seen with the often-improved efficiency when defense programs are classified (think Lockheed Skunkworks) and/or politics necessitates a selfless approach, as with the urgent need for Mine-Resistant Ambush Protected (MRAP) vehicle effort during desert storm.

The Emphasis on Flexibility and Portfolio Management

The Middle Tier Acquisition (MTA) framework, first authorized by Section 804 of the FY 2016 NDAA, is an acquisition pathway that focuses on delivering capabilities within two to five years. It allows for a very flexible path forward by breaking down what might otherwise be a major program into parts. A portfolio of MTA programs could be equal to a major defense acquisition program (MDAP). As per the interim implementing guidance, MTA is a "merit-based process for the consideration of innovative technologies and new capabilities [prototyping] . . . or existing products and proven technologies [fielding]." The rapid prototyping element of MTA must achieve residual operational capability within five years. The rapid fielding element must achieve initial production within six months and complete fielding within five years. Additionally, Section 804(d) establishes a Rapid Prototyping Fund to support MTA projects. The Rapid Prototyping Fund will operate with the onset of full MTA authority. In the interim, DoD components are funding their MTA efforts (Section 809 Panel Report, Volume 3 Section 1). The question is, will this work? MTA is just coming up on five years in enough numbers to look at whether they are making a difference.

Some programs, like Air Force Air Battle Management Systems (ABMS) under the new integration PEO, C3BM, under Program Element PE 0604003, with a budget more than $4.5 billion, have been broken into a number of MTAs and Software Pathway programs. ABMS could have entered into Milestone B as an MDAP but has taken the encouraged alternative approach and is known effectively a portfolio of smaller programs. What we don't know is if this approach will improve outcomes. It will be hard to know, because the DoD does not measure the alternative pathways similar to how it measures major programs, nor are there comparisons even at the model level, say a formal pre-milestone cost estimate or Analysis of Alternatives (AoA) that compared the strategy and would allow DoD to theorize if one approach over the other as being more efficient and effective.

Portfolio management within the management of programs has gotten popular in the last decade, both in government and industry. The Section 809 Panel noted with defense-unique development, "Much of the traditional debate surrounding acquisition reform is focused on the systems within this segment, and many challenges remain. While the DoD can still improve policy and process, its fundamental structure is appropriate." The panel did recommend a significant structural change to the management, the use of Portfolio Management (Vol III, Section 2). A series of recommendations outlined the benefits of shifting the DoD from a program-centric execution model to a portfolio-based execution model (Section 809 Panel Report, Volume 3 Section 1).

The Packard Commission and the resulting Goldwater-Nichols Department of Defense Reorganization Act of 1986 created the Defense and Service Acquisition Executives (DAE and SAE) and the Program Executive Office (PEO) that oversaw the work of the Defense Program Manager. The goal was to create a streamlined management structure for the Program Manager. The structure was the start of a layered portfolio starting at the Defense level, through

the Service to a PEO, which had a specific portfolio of programs. As noted, this is like a larger corporation breaking out a particular sector into a new firm which has various divisions.

The portfolio concept in the late 1980s was mainly focused on stock portfolios. The DoD use of PEOs created a focused portfolio structure before it was utilized in industry. In 2008, based on a *Best Practice: An Integrated Portfolio Management Approach to Weapon System Investment Could Improve DoD's Acquisition Outcomes* (GAO, 2007), the DoD Directive 7045.20, Capability Portfolio Management, was created. The same year, the American National Standards Institute issued the first Standard for Portfolio Management (ANSI/PMI-08-003-2008). The DoDD 7045.20 did not provide a new authority to the proposed Capability Portfolio Managers and thus did not have much of an impact. But it is worth noting that these portfolio approaches were almost 20 years post the move to PEOs.

In 2019, the Section 809 Panel recommended an Enterprise Portfolio Management framework that incorporates the most recent *2017 ANSI Standard for Portfolio Management* (4th edition) practices. In general, the recommendation is not implemented by the DoD, but the term the portfolio management has gotten popular within the DoD. At the DoD enterprise level, the various defense oversight department each has their own "portfolio" review process. Figure 8 outlines the various organizational portfolio reviews and the desire, by some, to synthesize and align the data structure across the reviews.

In 2024, the PPBE Commission also made recommendations for the DoD to take a portfolio approach, this time with the resourcing process. This was followed by Senator Wicker proposing in December 2024 the Fostering Reform and Government Efficiency in Defense (FoRGED) Act, which includes very similar proposals for portfolio management as the Section 809 Panel, to include the replacement of the PEO with a Portfolio Acquisition Executive (PAE). The name change to PAE recognized both the portfolio nature of the organization and the Acquisition Executive, the authority. The PAE could now be a kind of independent division within the firm, held accountable to a set of metrics.

Brian Shultz, a Defense Acquisition University (DAU) Professor, created a paradigm shift chart (see Figure 8) with seven noted shifts. The emphasis one gets out of this is the move to focus on warfighters' missions within an enterprise architecture.

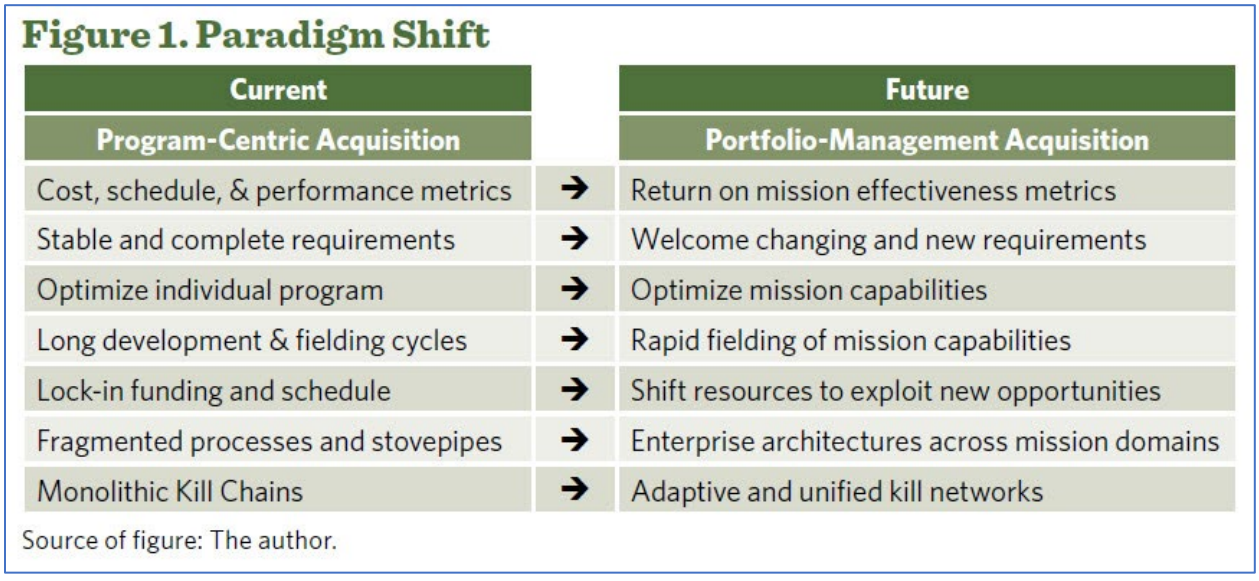

Figure 1. Paradigm Shift

Current		Future
Program-Centric Acquisition		Portfolio-Management Acquisition
Cost, schedule, & performance metrics	→	Return on mission effectiveness metrics
Stable and complete requirements	→	Welcome changing and new requirements
Optimize individual program	→	Optimize mission capabilities
Long development & fielding cycles	→	Rapid fielding of mission capabilities
Lock-in funding and schedule	→	Shift resources to exploit new opportunities
Fragmented processes and stovepipes	→	Enterprise architectures across mission domains
Monolithic Kill Chains	→	Adaptive and unified kill networks

Source of figure: The author.

Figure 8. Program vs. Portfolio Management

Multidimensional Portfolio Management

Though progress has been made, the challenges to the organizational changes are daunting, and to this day, the portfolio approach is not well aligned with the DoD across the decision support systems. Unlike product/systems design and development that uses a common ontology, called the work breakdown structure (WBS) across cost, schedule, performance, contracts, and other product/systems level efforts, there is no such ontology for the portfolio level across the decision systems. In fact, the portfolio breakouts are not the same, and the DoD lacks a very good mapping of the breakouts across requirements, resources, or acquisitions.

In 2024, OSD A&S, R&E, and Joint Staff signed an MOA to attempt to better align their three portfolio reviews. The other players, CAPE and Comptroller, did not join this effort. See Figure 9, which outlines the various portfolio reviews. IAPR is Integrated Acquisition Portfolio Review. CPMR is Capability Portfolio Management Review. TMTR is Technology Modernization Transition Review. With alignment of challenges and reviews not going well, in 2022, the OSD asked the Acquisition Innovative Research Center to explore the challenges with the portfolio approach. That resulted in the concept of not just a multi-layer portfolio structure, as outlined in the Section 809 panel, but a multidimensional structure that could incorporate the various ongoing portfolio review dimensions into an aligned vertically and horizontally ontology.

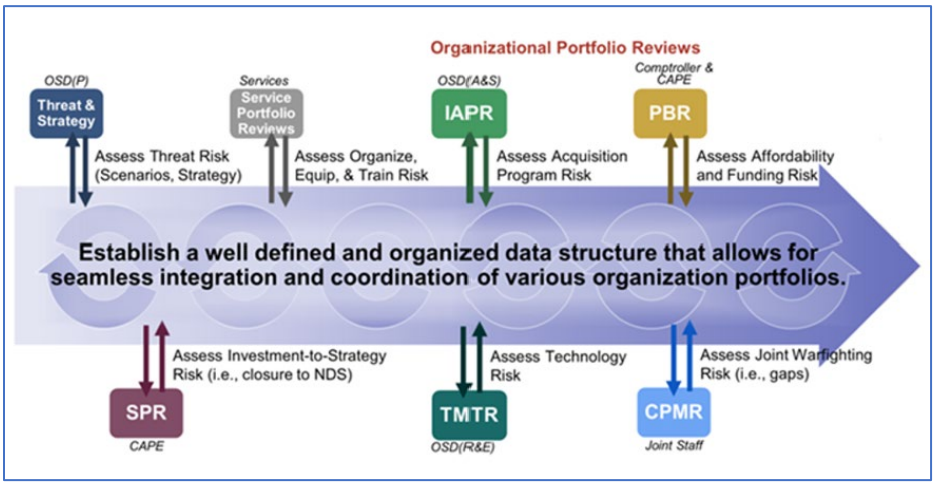

Figure 9. DoD Portfolio Reviews

The University of Maryland Project Management Center for Excellence led the study. They theorized the focus of the portfolio structure should align with a DoD value chain (see Figure10), which creates a horizontal path of primary activities that follow the defense-unique efforts from creating/capturing emerging technology through its incorporation into materiel systems vis programs of record. Then deploying those systems within operational units which combine various systems (platforms, weapons, sensors) to create a capability that is used within missions for a specific combatant, whether that be a regional, functional, or support combatant (UMD, 2023).

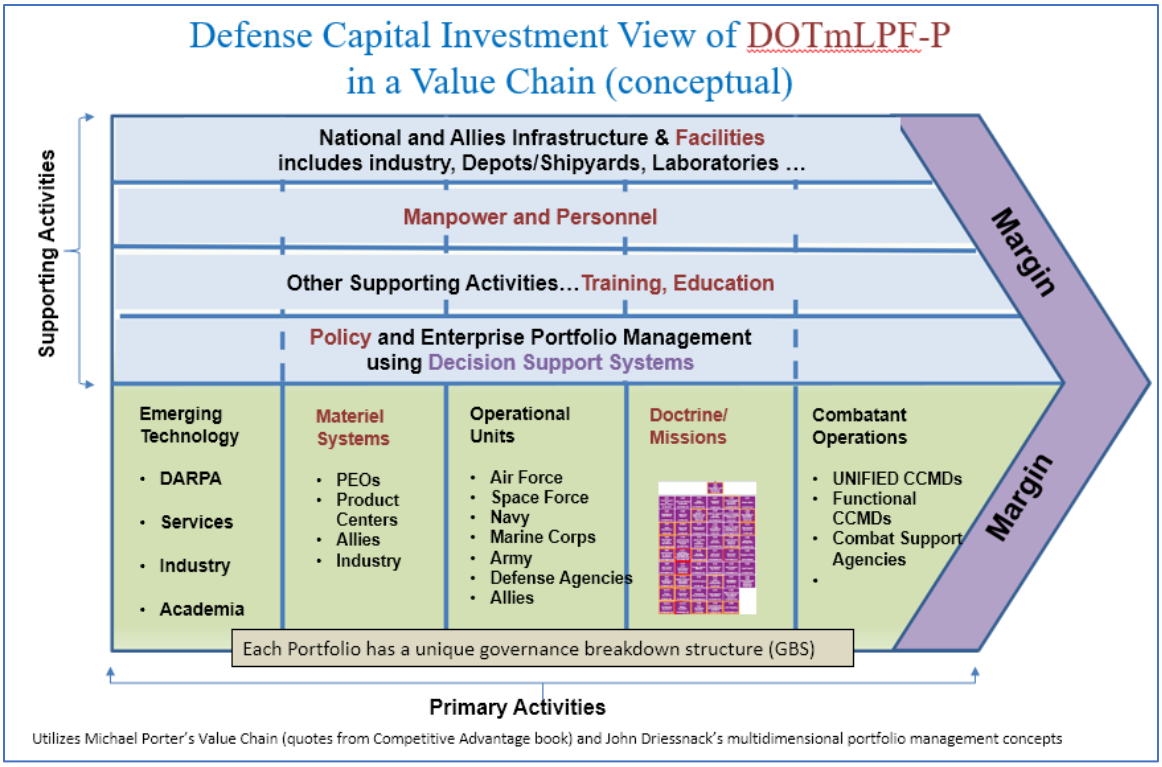

Figure 10. Defense Value Chain

Beyond the various multidimensional portfolio, the research proposed the need for an aligned ontology, which would require a many to many relationship, across the portfolios to understand the alignment of key information and decisions to be made within each of the portfolios. Given the time-critical nature of the defense enterprise, a robust network of schedule models that were also challenge-informed (considered constraints, assumptions, issues, risks, and opportunities [CAIRO]) was proposed. The only way to optimize across the enterprise was to have enough of an understanding on the alignment of the key primary activities. A notional model alignment and decision analysis model was proposed. See Figure 10, the Primary Activities are the multidimensional areas.

The research noted that the change would be a significant cultural change, and thus, implementation should be done with an agile approach in increments creating the tools necessary with minimum viable product (MVP) that continues to evolve over time. The approach would be like the big data efforts within industry, but industry systems would not meet the need. This unique firm, the DoD, needs unique ontology.

Conclusion

The DoD can't rely on a push to the commercial market will fix its challenges in the Defense-Unique Markets and in many cases the Readily Available with Customization Markets. The DoD does need to learn from industry and think of itself as a larger firm and design it's institutions to optimize across the various markets. One theme will not work within each of the markets it participates in, not across the diverse set of unique systems and products is invents, innovates, and managers. It should look at itself through the lens of a monopsony firm within the Defense-Unique Market and New Institutional Economics, with choices being assessed through the Theory of the Firm, Transaction Cost Analysis, and Public Choice Economics frameworks. Through this framework, further research and application are needed to evolve the institutions.

If one moves away from trying to be more commercial and looks internal to the DoD firm at the Decision Support Systems and the related organizations at the DoD (Enterprise) level, the Services, and then various multidimensional portfolios across the value chain, it is clear that the structure is not aligned, and thus one can conclude it is not streamlined. A move to a capability portfolio structure that is aligned across Requirements, Resources, and Acquisition (the three key parts of the decision support system) would be a great first step that is likely to have a significant return in effectiveness and efficiency. Given the complexity of the organizations and the institutional rules it must live by, further steps will be needed.

An economic model based on the appropriate theories, which are complex enough to be realistic but simple enough to be usable, will help with organizational change and the alignment of leadership and management. The DoD uses many models, including cost and schedule, missions and campaigns, manpower and force structure, and program and budgeting. However, there is no aligned model across the value chain, so there is no way to measure the impact of decisions against the department's key value measures across the enterprise.

This is not a simple task. Industry centers on price and profit, which allows it to simplify its modeling at the enterprise level and to optimize at the portfolio level. Price theory helps the commercial industry, which is not available to the DoD. Even though corporations, the firms, are managing with the “visible hand,” management is greatly assisted by the “invisible hand” of the market. The DoD, when it comes to the defense-unique market, has much less insight coming from the market thus the “invisible hand” will drive what will seem like extra transaction costs compared to industry. It is also much more influenced by “political transaction costs,” which are not as prevalent in most markets. Additionally, the DoD has a volatile market demand signal. Overall, it just might be more cost-effective to have more aggregate transaction costs than fewer.

The challenges in the defense market are unique, the solutions will need to be unique also, but they can be based on a combination of economic models and a selection of industry best practices along with defense unique solutions, which it has created before, and industry has adopted.

Acknowledgements

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