

USAWC STRATEGY RESEARCH PROJECT

**STRATEGIC FRAMEWORK FOR THE DEFENSE ACQUISITION SYSTEM:
UNDERSTANDING DEFENSE CONSOLIDATION**

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ABSTRACT

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The 1993 policy to promote the consolidation of the United States defense industry began a series of acquisitions and mergers that went beyond the intent of the policy and left the Department of Defense (DoD) in a monopolistic environment. This sweeping reform produced unintended consequences that remain in the market today. There are essentially five major defense contractors who wield tremendous power. These companies account for nearly 70% of defense product sales annually. Defense consolidation has diminished the flexibility required for surge capacity, diminished competitive innovations in products, and reduced competitive pricing based on multiple sources for products. Research indicates that the defense acquisition system can be analyzed on a three part strategic framework comprised of the military, the economy and politics. An understanding of the interrelationship of these three components within the context of the strategic framework can not only provide us insight into how the system will behave given certain inputs, it can also help us to shape the future acquisition system. Recommendations are provided to adjust the current DoD acquisition strategy in order to increase both the effectiveness and efficiency of the defense acquisition system.

STRATEGIC FRAMEWORK FOR THE DEFENSE ACQUISITION SYSTEM: UNDERSTANDING DEFENSE CONSOLIDATION

In 2006, the United States spent \$445B on defense – more than all other countries in the world combined. Of this, \$154B was spent on procurements or procurement related services, of which \$108B went to five defense companies (Lockheed Martin, Boeing, Raytheon, General Dynamics, Northrop Grumman)¹ that rank 1, 2, 4, 5 and 6 in the world. They not only control approximately 70% of the United States defense market, they control nearly 50% of the world market.² This environment, characterized by near monopolistic hegemony, was created through Department of Defense (DoD) policy and political pressure for defense industry companies to consolidate in response to post-Cold War economic realities.³ This sweeping reform produced unintended consequences that remain in the market today. This paper proposes a strategic framework for the defense acquisition system to provide a predictive model for industry behavior in response to defense acquisition system policy.

The 1993 policy to promote the consolidation of the United States defense industry began a series of acquisitions and mergers that went beyond the intent of the DoD. This policy will be used to underpin the newly proposed strategic framework. The complex system will be simplified into an operational context in order to define the operational environment where the dynamics of efficiency versus effectiveness will be discussed. Next, the competitive elements that influence the system will be examined as to how they differ from the commercial sector. Finally, the impacts of the 1993 policy will be assessed against the predictive behavior model to recommend policy changes to reverse these systemic issues.

The Defense Industry Consolidation Policy and Market Impacts

In 1993, then Secretary of Defense, William Perry, argued for wholesale restructuring of defense industries. In the face of shrinking defense budgets, Secretary Perry's three part plan was: 1) DoD institute a more economically efficient purchasing process; 2) procure commercial technologies (to reduce the research and development (R&D) budget); and, 3) consolidate industry to reduce fixed overhead cost.⁴ The restructuring was in response to the post Cold War projections that the defense acquisition budget could fall by as much as 70%⁵. The strategy was intended to make defense acquisition programs more competitive and cost efficient, while concurrently making the defense industry leaner. The projected synergistic effects of this approach were to provide a shared technology base between the DoD and industry, drive down the cost of research and development, and lower industry overhead, thereby reducing the

overall cost of acquisition programs.⁶ Though still debated, this paper will show the policy did not achieve its desired results.

There were four main reasons that the post-Cold War industrial base policies failed to meet objectives. The primary failure was that companies did not reduce their fixed overhead and become leaner through mergers. The DoD failed to develop metrics for the desired level of consolidation or to participate in antitrust reviews of mergers that shaped the current market. Major companies were not prepared for the paradigm shift from platform development to service specific capabilities and technologies for joint military operations. Finally, commercial products and technologies did not easily transfer into defense products. The cumulative effect of these failures is a monopolistic defense industry that controls unprecedented levels of authority over defense spending.

The major failure was based on the assumption that the defense industry would reduce their fixed overhead and effectively reduce their overall cost of production. Prompted by the new DoD push for the use of commercial technologies, many defense companies procured commercial-based businesses under the assumption that their products would have immediate military application with little additional investment. These procurements were counter to the assumption that companies would divest overhead. Acquisitions became as prevalent as mergers. While the overall value of corporate tangible assets fell 7% from 1993 to 1999, the value of total assets rose 32%. The fact is that tangible assets have declined little since 1993 and overall assets have increased significantly.⁷ To compound the problem, while Secretary Perry was encouraging mergers to lower overhead costs, his undersecretary of defense for acquisition responded to pressure from major defense contractors to allow their companies to bill the Pentagon for the cost of these mergers and acquisitions.⁸ This led to the DoD paying out billions in unforecasted expenses.

Although DoD actively promoted industry consolidation, they failed to play an active role in anti-trust screening of potential acquisitions and mergers.⁹ According to a Defense Science Board report, "...DoD participation in antitrust review of mergers by the enforcement agencies (Federal Trade Commission (FTC) and the Antitrust Division of the Department of Justice (DOJ)) has been uncoordinated, with the result that DoD often did not participate effectively, or at all, in the review process."¹⁰ The resultant acquisitions and mergers have led to a more vertically integrated industry (the addition of supplier product lines to a firm that also makes products at a higher tier). To date, the government has not been able to determine the effects of vertical integration because industry analysts and antitrust agencies neither measured it nor had a mechanism for measuring it.¹¹

The paradigm of defense spending on platforms (aircraft, tanks, submarines and ships) from the Reagan era changed dramatically in the late 1990s. Much of the focus for defense procurement shifted to network-based information technologies and communications. The DoD is now pursuing system-of-systems management to deliver capabilities to services for joint military operations. This represents a shift from the past emphasis on platforms with a primary focus on service-specific technologies and programs.¹² Many of the newly consolidated defense manufacturers were not in a position to efficiently enter into this new era of procurement.

Finally, Congress and the DoD significantly reduced R&D and procurement funding based on the assumption that commercial products and technologies were readily transferable to defense requirements. This assumption proved incorrect. Most commercial products do not meet all functional needs and require modification and hardening for military use. Altering commercial products requires additional R&D funding and alters the manufacturing process driving up both R&D and production costs.

The result of the Secretary's policy on consolidation of the defense industry is a current acquisition environment characterized by near monopolistic hegemony. By 1996 Lockheed Martin controlled 40% of the Pentagon's procurement budget.¹³ Today, the top 5 companies in the defense industry account for nearly 70% of defense product sales annually.¹⁴ Defense consolidation has diminished the flexibility required for surge capacity, diminished competitive innovations in products, and reduced competitive pricing based on multiple sources for products.¹⁵ The price of major defense acquisitions has risen and the time to get products delivered has increased.¹⁶

The failures of the acquisition process were a direct result of a flawed defense acquisition policy and poor government oversight. Understanding and application of this cause and effect relationship can help shape the future acquisition environment. A strategic framework for the defense acquisition system can be used to evaluate potential behaviors of the defense industry in response to political, military and economic inputs (see figure 1).

Defense Acquisition System Strategic Framework:

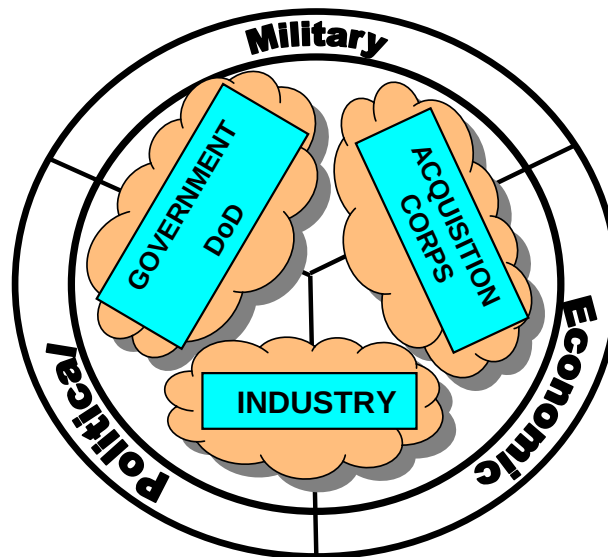
To establish a framework for analysis, the nature of the DoD acquisition system must be examined. At face value the Acquisition Corps exists as the establishment charged to procure the military means with which the Armed Forces achieve the ends of national military strategy. In its purest context, it is the business extension of the United States Military with responsibility

to procure the most advanced weapon systems, consistent with national military strategy, at the lowest possible cost to the government.

Defense Acquisition System Framework

Military Behavior Tendencies:

- Military gets most effective products (best overall value)
- Lowest overall cost (per system)
- Lowest corporate profitability (but reasonable)
- Low political gain for local politicians (possibly higher for national politicians)



Political Behavior Tendencies:

- Military gets moderate value (however, they may get products or services they neither want nor need)
- Rise in overall costs (due to inefficient spending practices)
- Moderate corporate profitability (resources are being directed toward smaller businesses)
- Highest political gain for local politicians (lowest for national politicians).

Economic Behavior Tendencies:

- Military gets moderate value (production efficiency over effectiveness)
- Highest overall price to government (per system)
- Highest corporate profitability
- Moderate political gain for local and national politicians

Figure 1. Defense Acquisition System Framework

The acquisition corps is only a single element to the framework of the defense acquisition system. If, as Clausewitz derived, “war is an extension of policy through other means,”¹⁷ then DoD acquisition is an extension of domestic economic and political policy by other means. It is the business extension of the United States Military with responsibility to procure the most advanced weapon systems consistent with national military strategy. The second component of the framework is the economy. Spending of appropriated funds is part of supply-side (or pump-priming) economics¹⁸ and is intended to stimulate the economy. The final component is the political system. The manipulation of the defense budget is a political way unto itself. The framework, therefore, for the defense acquisition industry is built on these three components: military, economic, and political.

Military

As previously stated, the primary purpose of the defense acquisition system is to procure the military means with which the Armed Forces achieve the ends of national military strategy, at a fair and reasonable price. Since this purpose is self evident, we will elaborate on the other two legs of the triad in order to establish a basis to understand the effects of DoD policy and government intervention in the acquisition systems.

Economy

The second component of the triad is the economic sector. A major purpose of defense spending is to bolster the United States economy, providing growth opportunities for small and large businesses. During the 1980s President Ronald Reagan utilized defense spending to stimulate the economy engendering names like Reaganomics, or Voodoo Economics. A look at some of his policies reveals that Reaganomics was a thinly veiled supply side economic theory put into practice.¹⁹ The buildup of a strong national defense provided vast amounts of jobs and pumped billions of dollars into the national economy at the household level. The economic pulse that was generated is credited for reversing the runaway inflation trends of the Carter administration. Average household GDP grew 2.6% annually under Reagan with his emphasis on defense spending.²⁰

Politics

The third component of this framework is the political system. Defense spending is a political way into itself. The United States is the most powerful economic nation on earth. It has a Gross Domestic Product – the market value of the nation’s output of goods and services - of \$13,179.3 billion in the second quarter of 2006.²¹ Approximately 7% of the GDP is generated by

the defense industry. The USG will spend approximately 3.9% of the GDP in 2007 on national defense. This represents nearly 20% of the president's annual budget, which provides congress their largest area for discretionary spending.

Discretionary spending within the national budget is important to political ambition and reelection. The term, "It's the economy stupid", coined by James Carville during the 1992 presidential campaign,²² was intended to convey that the American peoples' greatest concern in an election is how they are personally doing from an economic standpoint. If people have good paying, stable jobs, they see no need to make changes to the current administration. In order to affect the economy of some districts, politicians need to be able to affect the discretionary portion of the president's budget and move as much of those funds as possible into their district. Success in this endeavor is a powerful political way to affect their constituency and remain a viable political opponent.

Given this military, economic, and political framework of the defense acquisition system, how will the defense industry react to inputs? This model makes the following broad behavioral assumptions:

Military: If the focus of the Defense Acquisition System is more heavily focused toward the military sector (where the national level focus is getting the best military product for the best price), then the following behaviors are predicted:

1. Military gets most effective products, or best overall value (direct)
2. Acceptable overall cost (per system) to the military (direct)
3. Lowest corporate profitability (but reasonable) (indirect)
4. Low political gain for local politicians, (possibly higher political gains for national level politicians) (indirect)

The build-up of the military during the Reagan Administration is an example of when the defense acquisition system was most heavily weighted toward the military sector.

Economic: If the focus of the Defense Acquisition System is more heavily focused toward bolstering the economy, then the following behaviors are predicted:

1. Military gets moderate value (some effectiveness is traded for efficiency) (direct)
2. Highest overall cost (per system) to the military (direct)
3. Highest corporate profitability (indirect)
4. Moderate political gain for local and national politicians (indirect)

The consolidation of industry under Defense Secretary Perry in 1993 is an example of the defense acquisition system being most heavily weighted toward the economic sector that continues to the present day.

Political: Where defense spending is being manipulated by congress, either to preserve a critical capability or for political gain (only indirect value to the military). The following behaviors are predicted:

1. Military gets moderate value (however, they may get products or services that they neither need nor want) (direct)
2. Rise in overall cost (due to inefficient spending practices) (direct)
3. Moderate corporate profitability (resources are being directed toward smaller businesses) (indirect)
4. Highest political gain for local politicians (lowest for national politicians) (indirect)

This sector operates in every budget cycle. However, it has more weight in this sector during election years.

An underlying assumption of the model is that the defense acquisition system operates in the political, economic and military sectors concurrently. The difference in industry behavior is determined by how the system is balanced between the sectors during a given period of time. Since the political movement of defense budgets is an ongoing part of the process and it is a budgetary way to affect a political end, its effects are temporal. The effects, however, are real and affect the ends of the defense procurement process.

The general behavioral assumptions are the recognition that free market competitive supply and demand does not determine selling price in the defense industry. Each behavior is motivated by the potential for either direct or indirect benefits, with associated direct or indirect consequences (labeled above from a military perspective). The following section lays out the operational environment and discusses ways in which they shape or are shaped by the strategic environment.

Operational Environment of the Defense Acquisition System:

The operational environment of the defense acquisition system is comprised of the *government* (non military), the defense *industry*, and the *acquisition corps*. It is the government's role to establish law/policy/regulation, generate demand, provide funding and ensure accountability. The defense industry, based on government policy and market demands, will tailor its size, shape its composition, and modify its behavior. The acquisition corps operates in the confluence of government and industry behavior where they operate as a professional buying agent for the DoD. The general framework assumes that the interaction within this environment will either drive the system more toward product efficiency or product effectiveness.

Government

It is the government's role to establish law/policy, generate demand, provide funding and ensure accountability. Policy is generated to shape the environment and or modify industry behavior. Demand for military products is generated based on the security of the global environment. Funding stability in programs determines corporate risk which affects pricing. And finally, the purpose of government oversight is to ensure that both defense industry and acquisition officials are acting in accordance with the appropriations bill and within the spirit of law, regulation, and policy.

Policy is generated to shape the environment and or modify industry behavior. The 1993 DoD policy to promote the consolidation of defense corporations was intended to produce a leaner defense industry. Companies began a series of unprecedented acquisitions and mergers. What were 107 separate US defense business units in 1980 became five large defense-focused firms by 1997.²³ While not the intended outcome, government policy clearly shaped the current defense industry.

Just as policy is used to shape the industry, regulations are developed to control it. They are intended to ensure that the military is able to fairly procure weapon systems at a reasonable price. The basic government document that regulates how the DoD interacts with the defense industry is the Federal Acquisition Regulation (FAR). It is further supplemented by the Defense Federal Acquisition Regulation (DFAR). Unfortunately, the intent of the 1993 Perry policy to institute a more economically efficient purchasing process fell short. These prescriptive regulations are generally not reflective of commercial practices making it difficult or unattractive for new businesses to conduct commerce with the United States Government (USG). For businesses that are in the market to sell products to the USG, the requirements of the regulations generate unnecessary products and work against administrative efficiencies.

The demand for military products is generally based on the security of global environment. The greater the perceived threat to the United States, the higher the demand for military products and services. In times of peace it is the personality of the administration that determines demand. Government actions predominate the defense market as it sets the rules (e.g., regulates contract types) and alone is responsible for uncertainty of demand as the sole buyer of defense goods.²⁴ The government can also limit demand by limiting a company's ability to sell products even when there is a secondary market. What is not limited by U.S. military need is often limited by government restriction through export control laws.²⁵

It is the United States government (specifically Congress) that provides funding for defense acquisition. The stability or instability of funding streams has major implications for

defense programs. Funding levels are derived from a program objective memorandum that lays out a six year budget cycle. Although intended to stabilize budgets and provide steady funding streams, defense budgets are generally subject to program cuts and funds reallocation during the year of execution. The turbulence that is generated creates instability in programs and causes industry to raise prices to compensate for the risk of uncertain future business.

Another way that the government affects the defense industry in the budgetary process is through Congressional additions to the budget. Funding is placed into a defense bill by a senator and/or congressman that targets a specific purpose or company. Some examples of these congressional adds are the procurement of six un-requested C-130s in 1998 for \$400 million sponsored by speaker of the House, Senator Newt Gingrich, to be built in his district. Senator Trent Lott added an un-requested LHD amphibious assault ship built in Pascagoula, Mississippi for \$1.5 billion.²⁶ Funding for Vibration Monitoring Enhancement System was added in 2005 by the South Carolina congressional delegation.²⁷ Congressional adds are not always bad. They are intended to serve the good of the constituency and generate political viability. They may also serve a vital national purpose by preserving a capability (i.e. naval ship building capability) that could otherwise be lost. The main point is that congressional adds exist. They are political and they affect the defense acquisition system.

The final responsibility of the government is oversight. Oversight is to ensure that both defense industry and acquisition officials are acting in accordance with the appropriations bill and within the spirit of the law, regulation, and policy. The amount of oversight is directly related to the personality of the Congress. According to a 2006 statement by John Isaacs, president of the Council for a Livable World and a former congressional staffer, "Occasionally oversight does occur, but not very often with this Congress."²⁸ The level of congressional oversight often affects the behavior of industry.

Industry

The defense industry will tailor its size, shape its composition, and establish or modify its behavior based on government policy and market demands. The new defense industry did not alter its size as the government had wanted. Instead, the industry reshaped its composition through mergers in the form of "mega-prime" companies. The emerging behavior is an industry that has elite companies who wield tremendous power and authority.

While both the DoD and Department of Justice (DoJ) moved in 1998 to curtail the further consolidation of the defense industry,²⁹ the effects continue today. The capability and capacity of the market that existed in 1993 is not gone, it has simply been reshaped. The new

composition of the defense industry fundamentally alters the environment of the defense acquisition system. The newly formed “mega-primes have now shaped themselves into organizations that look remarkably like defense program management offices. These mega-primes are winning government contracts as Lead System Integrators (LSI). LSIs perform three main functions; 1) managing contractors, 2) system of systems design and integration, and 3) building networks. This was done because, conceptually, the emergence of capabilities-based vs. threat-based procurement requires an industry partner with the technical competence to develop the systems architecture. The prime must then have the corporate clout to build a team capable of delivering a system of systems, on schedule and within budget. Theoretically, “the market supports defense firms that have predictable and steady streams of revenue from the Federal Government, and the mega-primes have the flexibility to move within and among programs to provide for financial stability.”³⁰

The LSI’s role of managing contractors, given the enormous scope of the projects, appears to be an inherently governmental function. Once the contract is awarded, the LSI assumes much of the authority previously held by the acquisition corps. They control billions of dollars of the defense budget and often must choose between profitability and system performance. The LSI concept leaves the ‘true competition’ in the hands of the major contractors, not in the hands of the defense acquisition officials. This is due to the legal concept of privity of contract. This means that the DoD only has legal contractual cognizance with the party with whom the contract was signed (the doctrine has proven problematic due to its implications upon contracts made for the benefit of third parties (in this case - the US Government) who are unable to enforce the obligations of the contracting parties).³¹ In other words, the DoD has no legal authority over sub-contractors. Therefore, all incentives gained from competition at the sub-contract level are held with the prime contractors and not with the DoD. According to Robbin Laird, “...profitability for the firm...is enhanced in the second phase in which [the lead systems integrator] manages the systems architecture.”³²

A look at industry performance can help determine whether the LSI concept produces favorable behavior from the defense industry. One example is the Boeing LSI team responsible for producing the Future Combat System (FCS). Cost estimates for the FCS have risen to \$165 billion (originally \$91B). The systems are also three years behind schedule and industry sources believe that the program is likely to experience further delays.³³ The F-22 Raptor cost per plane has risen 189 percent from \$125M to \$361M, while development time has increased by more than two years.³⁴ This empirical evidence suggests that contractors who overrun budgets and have schedule delays are actually rewarded with additional funding, program

longevity and incentive bonuses. Senator John McCain observed that, “Unfortunately, despite the delays and cost overruns of defense programs, contractors continue receiving incentive bonuses from the government.”³⁵

Acquisition Corps

The acquisition corps operates in the confluence of government and industry behavior where they operate as a professional buying agent for the DoD. The diagram in figure 2 is not intended to diminish the contribution or skill of the acquisition professional, but to depicts that his programmatic skill is governed or constrained by the other two elements of the acquisition framework: the economy (industry), and politics (government policy, regulation, law and budget). The acquisition corps is highly trained and highly specialized to conduct its mission. The foundations of the defense acquisition policy that guide today’s workforce are found in DoD Directive 5000.1 and DoD Instruction 5000.2. The 5000 series documents are responsible for such key initiatives are the Defense Acquisition Workforce Improvement Act (DAWIA), the streamlined acquisition chain of command, and the Defense Acquisition University. Some of the enduring principles of the DoD 5000 series manuals are: centralized policy, decentralized execution; fly before buy; streamlined organizations; limited reporting requirements and program stability.³⁶

Acquisition corps members are required to be level III certified (a required mix of training, education and experience) before they are eligible to lead defense acquisition programs. They are trained to utilize specific contract types consistent with program characteristics and risk. The contract is the key instrument whereby the acquisition professional influences industry behavior. The government regulates that cost type contracts are to be used for the development of new technologies that may place undue risk on a contractor in a fixed price environment. The problem with this approach is that it constrains the acquisition officer, places all the risk on the government and fails to provide accountability for cost overruns or delayed deliveries.

While it would be easy to conclude that cost overruns and schedule delays are the product of an inherently evil defense industry, each sector of the system bears some level of responsibility for its behavior. Companies are in business to make money. They will shape their structure and practices to maximize profits. It is the government that sets policy and determines contract types that have the greatest impact on the market. Inadequate and turbulent funding streams increase corporate risk, decrease manufacturing efficiency and drive up prices. Government combat developers also generate turbulence through over specified and

seemingly endless product requirements. The uniqueness and timing of these requirements affect product cost. The government must examine the true need for each requirement and be willing to suppress its appetite for “gold plated” equipment. Finally, once an acquisition office contracts for a product, the government must do everything possible to avoid adding requirements. Opening a contract to insert new requirements after final negotiation (especially fixed price contracts) hinders acquisition officials from being able to control costs.

It is within the intersection of where industry behavior overlaps with government regulation, policy and law that the acquisition professional operates. It is here where he possesses his range of programmatic influence (see figure 2). The program manager will attempt to drive his program or product toward effectiveness, while being constantly pulled toward efficiency with regard to fiscal constraints.

Efficiency vs. Effectiveness

The strategic components shape the operational environment, which in turn drives market behavior. Once these forces have shaped the operating environment of the defense acquisition system, the acquisition professional exerts his influence to balance production efficiency and product effectiveness to derive the greatest value for the United States military.

Efficiency

In a competitive market, all businesses strive for efficiency. Being efficient is being productive without waste.³⁷ Efficiency in operations drives down the cost of production. Lower production costs allow for companies to be more price competitive when market conditions warrant such competition. Greater efficiency provides for greater corporate profit margins in environments that are either absent of, or lacking substantial competition. This is process efficiency. While all companies strive to be more efficient, a truly competitive market drives greater innovation for process efficiencies.

A second type of efficiency is production efficiency. Production efficiency is best achieved through product standardization, common materials, standard manufacturing practices and bulk production runs. Unique military requirements with limited demand tend to drive down production efficiencies. Manufacturers will try to avoid unique requirements, materials that are difficult to shape, process and handle, and MANPRINT designs.³⁸ Avoiding these constraints allows the manufacturer to drive down the cost of production and increase profit margins.

PRODUCT EFFICIENCY VS EFFECTIVENESS

in the operational environment

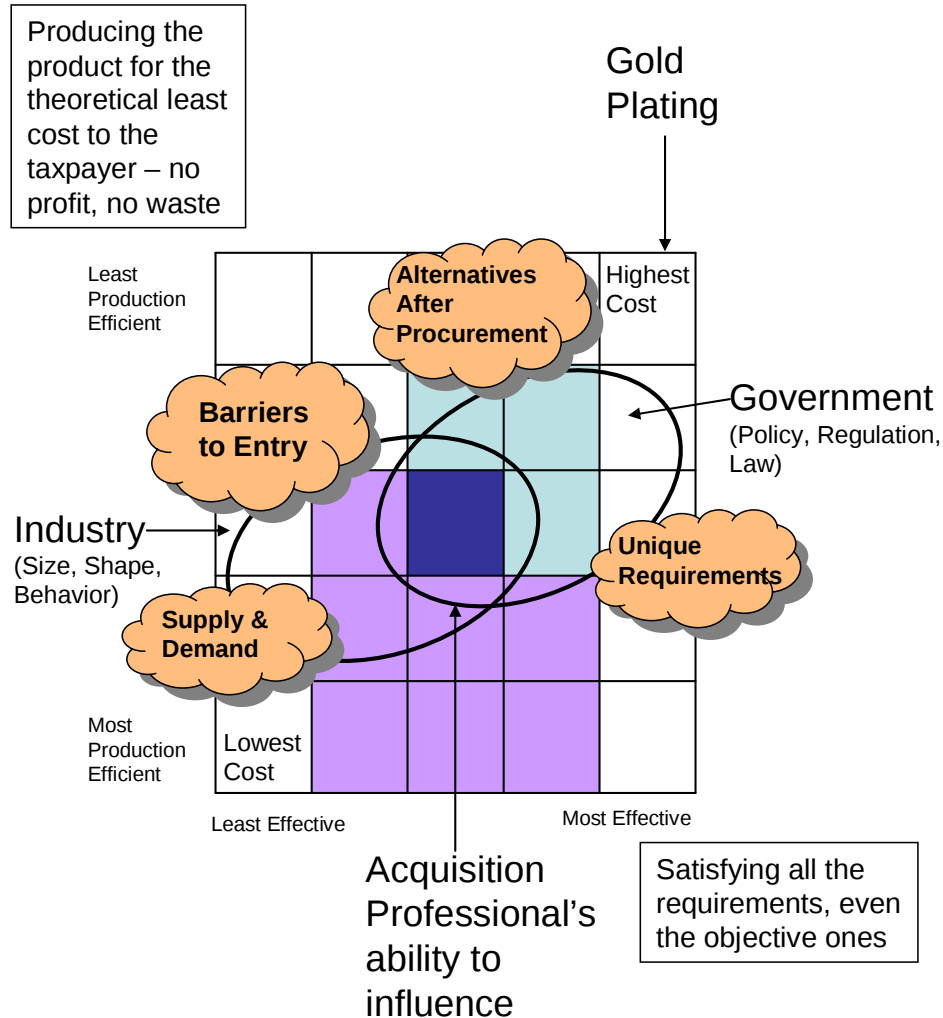


Figure 2. Product Efficiency vs. Effectiveness

Effectiveness

The program manager wants to generate the most effective product within the constraints of his budget. An effective product is one that is ready for service and produces the desired effect.³⁹ There is no substitute on the battlefield for equipment that is ready for service because of its robust design and is 100% effective by producing the desired effect against the enemy. However, there is a cost to effectiveness and the Program Manager must determine the point at which the specified level of effectiveness is not affordable.

Herein lays the contention between efficiency and effectiveness. Process efficiency is driven by competition. Production efficiency is driven by manufacturing requirements. Product effectiveness is driven by operational requirements and is limited by funding. The program manager will seek to procure the most effective product possible. However, fiscal constraints and individual company processes efficiencies will guide his programmatic decisions.

Unique Competitive elements that influence market behavior:

There are other elements that permeate the defense industry and shape market behavior, although to a lesser degree than the strategic components or the operational environment. The nature of competition in the defense industry must be understood to appreciate their affects. The true essence of competition is, "the effort of two or more parties acting independently to secure the business of a third party by offering the most favorable terms."⁴⁰ The four unique competitive elements of competition that will be discussed are: unique requirements, barriers to entry, supply and demand, and alternatives after procurement.

The military has unique requirements for its products. Unlike the basic requirement for transportation, all major programs come with hundreds, or even thousands, of requirements that generally cannot be met in a single commercial item. One example of a unique requirement is operating temperature range. Since the military operates in extreme temperature ranges, most specifications call for temperature ranges from negative 40 degrees Fahrenheit to positive 135 degrees Fahrenheit. This type of requirement, as well as the fact that most of our systems require weaponization, drives program managers to unique procurement solutions. Once designed, these systems/products require specialized materials and manufacturing capabilities to shape, process and handle production. Unique military requirements therefore drive high cost research and development programs and greatly increase the cost of manufacturing.

These unique requirements also generate high barriers to market entry. Most commercial companies do not possess the intellectual capital, unique manufacturing capabilities, or test facilities to produce military hardware. Additionally, the defense market is defined by unique transactions with U.S. government offices utilizing highly stylized rules for contracting.⁴¹ Just the entry cost to participate in DoD competitive procurements can run into the millions of dollars. This barrier to entry is even more critical in the light of the consolidated industry. Unfortunately, the momentum of defense consolidation is so overwhelming that it cannot be overcome or reversed in the short run, which has negative effects in the market today due to a lack of competition.

While supply and demand drives most markets, the defense industry generates its own demand, and in many ways greatly influences the supply. Here, the government acts as both buyer of goods and regulator of the market. Government demand for military products is generally driven by perceived threats. The call for peace dividends following the Cold War and the defeat of the Iraqi army drove down the government demand for military goods and services and helped shape our current acquisition environment. One of the failures of the consolidation policy is that it assumed a static environment of peace where a large defense industrial base would no longer be required. The 2001 attack on the United States generated immediate government demand, yet the industry has not changed in order to effectively meet that demand.

The final element that shapes the market is the limited alternatives for the defense product after procurement. Since there is generally not a secondary market for major defense hardware, the U.S. military plans on keeping its defense systems from their inception through their disposal. There are two significant effects from this process which affect the lifecycle management of products. First, any faulty system design must be redesigned and retrofit to ensure effective system performance. Since most technical data is proprietary, the manufacturing company generally has a monopoly on the redesign and retrofit. Second, in order to extend the service life of weapon systems, the military has a propensity to recapitalize its major procurements (e.g. the AH-64 Apache, the B-52 Bomber, The M1 Abrams Tank, the UH-60 Blackhawk, etc.). Recapitalization, in most cases, requires the original equipment manufacturer to perform the service through a monopolistic relationship. Since the DoD discourages the procurement of technical data packages due to their exorbitant cost,⁴² cost efficient sustainment and support is challenging. Essentially, without the technical data to allow for breakout buys and to support competition, the sustainment of these programs reverts back to a near monopolistic environment. The R&D investment in these programs is so large that it is generally not feasible to re-compete the requirement, and therefore the threat of further competition is not regarded with any authenticity.

Competition in defense acquisition programs cannot be viewed through the same lens as competition in the commercial market. Yet, the greater the number of manufacturers that compete in each segment of the defense industry (aircraft, wheeled vehicles, armored vehicles, networks, etc), the better the beginning value during the initial competition stages. Competition will force companies to drive efficiency into their manufacturing processes. By doing so they can offer lower prices, technical data packages, shared data rights, and long term investments into upgrades of their products for the sustainment and support phase of the lifecycle in order to win a 'best value' contract competition.⁴³

Conclusion

The defense industry consolidation policy shaped the operational environment and moved the defense acquisition system heavily into the economic sector of the model. The resultant effects are that many military programs are well over cost and behind schedule. Congress must be the driving force in reforming the system by changing policies to reshape the environment, providing adequate funding, regulations and oversight, and establishing strategic procurement policies that promote efficiency of defense spending coupled with competition in the marketplace.

Congress and the DoD must change current policies, regulations, and practices. There are far fewer defense firms competing today for many more contract dollars, which was not the desired outcome of the 1993 policy.⁴⁴ The DoD must modify policy to allow acquisitions and mergers to occur where synergies are good for both industry and the military. To do this, they must actively participate in acquisition and merger reviews carried out by the Federal Trade Commission. Second, The DoD must reverse the effects of the “mega primes” by promoting a more competitive defense industry. However, if trends cannot be reversed through policy due to barriers to entry, then the FTC and the DoJ must force the break-up of the defense branches of major defense contractors. Finally, they have to terminate or greatly modify the use and scope of LSIs (increase government oversight of sub-contractors and competition below the LSI level) in the defense procurement process.

Congress must adequately fund defense programs, allow fixed-price contracting for R&D contracts, and exercise program oversight. This requires lawmakers to allow funds to be locked into more process efficient multi-year contracts, which potentially reduces their ability to affect their constituency. Congress must provide acquisition officials more flexibility to determine their contracting approach to R&D contracts. Fixed price contracting for R&D contracts is consistent with commercial practices, promotes fiscal responsibility and helps drive innovation. However, it requires strict controls against requirements growth. Any requirements to be added once the contract is awarded must be approved at the Program Executive Office level and be contracted as a separate fixed price option. Finally, Congress must perform strict oversight of major contracts to ensure compliance with laws, regulations, and appropriations language.

Finally, the DoD must established strategic procurement policies that promote effective defense spending in complex environments. Ultimately, the United States government must utilize its monopsony position to shape a market where industry is able to maximize efficiencies to offer lower prices on effective military products in response to a competitive environment. This includes weaving together the other recommendations of active involvement in antitrust

reviews (reshape the industry), reconsideration of the use of LSIs (or have more oversight), and the current Chief of Staff's push to ensure the president's budget has appropriate levels of defense funding. A coherent acquisition strategy formulated through an understanding of the framework for the defense acquisition system could properly shape an effective and efficient military acquisition system.

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⁴⁰ Webster's, 230.

⁴¹ Driessnack and King, 66.

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⁴⁴ Flamm, 6.