Strategy Research Project

Affordability: Preventing Cost Growth in DoD's Military Capability Portfolios

by

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Abstract

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Our military capability portfolios will continue to be developed to address current and future threats to our national security. The current economical frailty plaguing the United States is pressing the Department of Defense (DoD) to do more without more resources. In light of this, DoD must develop an affordable and reliable equipping strategy that plans and prioritizes its requirements, resourcing, and acquisition processes in order to get the capabilities it needs to achieve the goals and objectives specified in the National Security Strategy (NSS). Cost growth that makes a DoD program unaffordable translates to lost capability to the nation. Over the years, DoD has endured various unfavorable reviews about its ability to manage the defense budget. The observations of excessive cost growth, unrealistic requirements, and inability to deliver capabilities has reached alarming levels. To address these issues the President and Congress want more accountability within the DoD procurement process. While DoD has implemented some affordability initiatives, more must be done. This SRP examines the need to formulate an equipping strategy underpinned by constrained resources. It concludes with some recommendations.

Affordability:
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> This DoD must stop programs that significantly exceed their budget or which spend limited tax dollars to buy more capability than the nation needs. We must ensure that requirements are reasonable and technology is adequately mature to allow DoD to successfully execute the programs.
>
> —Robert M. Gates[1]
> Former Secretary of Defense 2006-2011

In the 21st century, our military capability portfolios continue to be developed to address current and future threats to our national security. The Department of Defense (DoD) will continue to have fiscal pressures exerted on its budgets and DoD leaders will have to make hard decisions on how to make programs in its capability portfolios affordable. Affordability is the cost of capability and when that capability can be provided to the warfighter. The cost reflects the time, talent and resourcing needed to transition a requirement to a capability and ultimately deliver it to the warfighter. Affordability also reflects the degree to which the system's cost contributes to DoD's long range modernization, force structure, and manpower plans.[2] DoD must balance between its institutional support cost and operational force cost and determine how much common core capability and force structure can DoD afford and what tradeoffs exist. For DoD to meet the challenges of this evolving strategic and fiscal environment, it must develop an affordable equipping strategy that takes into account requirements, capabilities, priorities, risk, and available resources. Cost growth that makes a program unaffordable translates to lost capability to the warfighter. DoD has to make efforts to improve the efficiency and effectiveness in its acquisition processes and to prevent the

risk of not having the right capability, at the right place and right time to secure national interest.

In this challenging fiscal environment, DoD must maximize efficiencies in its capability portfolios. Chairman of the Joint Chief of Staff (CJCS), General Martin Dempsey's strategic direction to the joint force was simple and precise: "We must develop a Joint Force for 2020 that remains ready to answer the Nation's call—anytime, anywhere. We need to offset fewer resources with more innovation. We also must confront what being in the profession of arms means in the aftermath of war."[3] In order to achieve affordability in the joint capabilities portfolios, DoD leaders must make choices in the ways requirements, resources, and acquisitions are planned prior to launching new programs to the field. To accomplish this, these leaders should create a culture that fosters fiscal responsibility prior to program start-ups, that reduces the cost of its capability portfolios, and that delivers long-term capabilities that are affordable and sustainable. In such a culture, DoD will then begin to restore its credibility in defense acquisition.

Background

On October 16 2006, the President signed into law the Fiscal Year 2007 John Warner National Defense Authorization Act (H.R. 5122/P.L.). The House Armed Service Committee's report on the John Warner National Defense Authorization Act prior to it being signed into law stated:

> The ability of the Department to conduct the large scale acquisitions required to ensure our future national security is a concern of the committee". The committee's concerns extend to all three key components of the acquisition process including requirements generation, acquisition and contracting and financial management.[4]

DoD's acquisition processes consist of capabilities, resourcing, and acquisition.[5] The acquisition system for identifying capabilities, resources, and acquisition represented in Figure 1 adheres to the principle that the acquisition system must interact to ensure success of a program to meet cost, schedule, and performance thresholds. The House Armed Service Committee report on H.R. 5122 further observed that inefficiencies are causing rising costs and schedule overruns; as a result, new weapons systems are unduly expensive and of dubious capability.

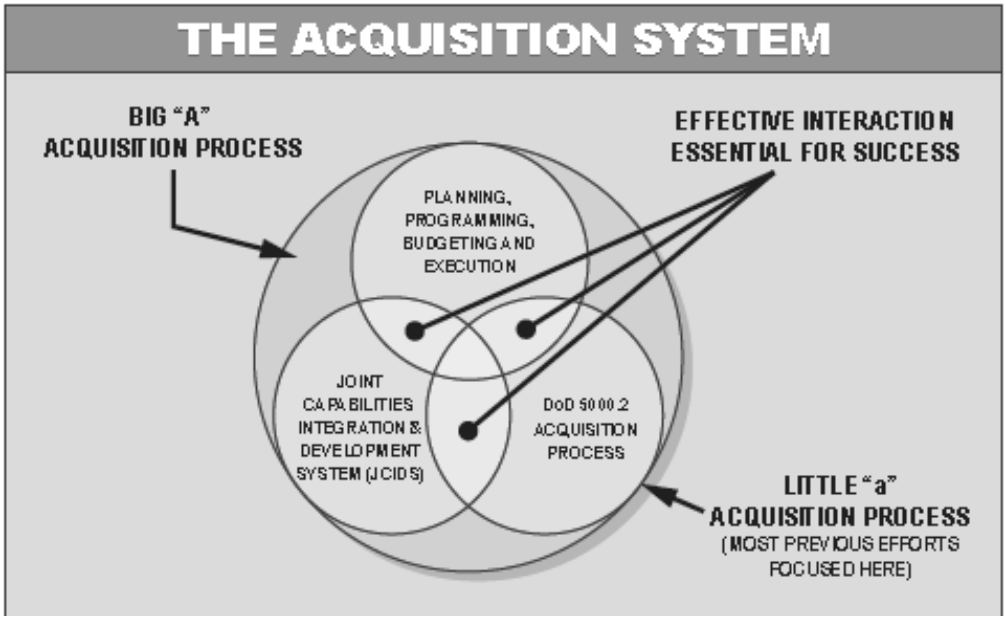

Figure 1. The Acquisition System—Integration of the Joint Capabilities Integration & Development System (JCIDS), Planning, Programming, Budgeting, and Execution (PPBE), and Defense Acquisition System (DAS) Prior to Program Inception is Paramount to Building Affordable Capability Portfolios.[6]

In May 2009, President Barack Obama signed the Weapon Systems Acquisition Reform Act (WSARA) of 2009, Public Law 111-23 following unanimous Congressional approval.[7] The WSARA is crafted to deliver expected capabilities to the warfighter and to reduce costs and schedule overruns in DoD acquisition programs. Clearly, the Obama Administration and Congress want weapon systems investment accounts to deliver promised and needed capabilities to secure U.S. interests domestically and

internationally in an affordable manner. The WSARA legislation indicates the President's and Congress's concerns and issues with DoD acquisition, especially with rising costs of its programs and with frequent schedule overruns of critical weapon systems. The WSARA charges the Joint Requirements Oversight Council (JROC) to make trade-offs in costs, schedules, and performance.[8] Cost is determined by the life cycle expense of a weapon system. Schedule is defined as the time it takes to develop, procure, and deliver a weapon system to the warfighter. Performance is defined as a weapon system's ability to provide an identified capability.

Section 201 of the WSARA requires the consideration of trade-offs among cost, schedule, and performance objectives in DoD acquisition programs.[9] In response to Section 201— the Under Secretary of Defense (USD) for Acquisition, Technology, and Logistics (AT&L) issued the Better Buying Power (BBP) memorandum to the acquisition community directing Program Executive Offices (PEO) to implement best practices to strengthen DoD's buying power, to improve industry's productivity, and to provide an affordable, value-added military capability to the warfighter.[10]

The 2010 USD AT&L BBP initiatives specifically direct that affordability will be treated as a requirement. This affordability requirement will be managed throughout the life of the program.[11] Former USD AT&L Ashton Carter asserted, "The ability to understand and control future costs from a program's inception is critical to achieving affordability requirements."[12] Mandated affordability as a required performance goal offers DoD leaders opportunities to stabilize the defense budget. USD AT&L's strategic objectives are to generate cost savings, to deliver capabilities to the warfighters sooner,

to increase accountability, and to provide incentives for both government and industrial participants to contribute to greater efficiencies within DoD's acquisition process.

USD AT&L's BBP policy requires acquisition managers to treat affordability as a requirement in planning and executing the programs within capability portfolios much in the same way that key performance parameters, such as speed, power, and data rate, are defined for a weapon system.[13] Thus, affordability has been designated as a design parameter that cannot be sacrificed or compromised without the USD AT&L's approval.[14] Affordability as a requirement requires acquisition officers to establish affordability cost goals at a program's inception and to sustain this requirement from design, to engineering, to production, to operation, and to sustainment. This new concept and expanded interests in affordability often creates an environment that will require radical reform from the enterprise level to the program manager level—to what extent is often the puzzling question.

History

DoD acquisition reforms are not new. DoD has for a long time recognized that its requirements, resourcing, and acquisition processes are not optimal. Over the last 60 years hundreds of reforms have been crafted to deliver more affordable and readily accessible weapon systems to meet the presidential objectives stipulated in the National Security Strategy.[15] Some examples include the Hoover Commission Report in 1949, the Fitzhugh Commission Report in 1970, the Packard Commission Report of the 1980s, the Federal Acquisition Streamlining Act and Perry Memo of 1994.

The Hoover Commission Report focused on the roles and responsibilities within the newly established DoD; it focused on DoD's relationships with the Legislative and Executive Branches. Subsequently, the Fitzhugh and Packard Commission Reports,

also known as the President's Blue Ribbon Commission on Defense Management, focused on root cause analysis for cost and schedule overruns in the acquisition process.[16] Both Blue Ribbon Panel Reports recommended changes in the acquisition process, such as centralization of procurement, professionalization of the acquisition corps, management improvements, and changes in contracting procedures, new development strategies, and improved Legislative and Executive relations. The reforms also suggested that Congress was possibly micromanaging the acquisition process and causing further inefficiencies. In 1999, after nearly 30 years of regulatory and statutory changes to the acquisition process there were no substantial improvements in the acquisition system and programs continued to incur cost and schedule overruns.[17]

Then in January 2006, the requirements, resourcing, and acquisition processes started to draw attention. On 7 June 2005, the Defense Acquisition Performance Assessment (DAPA) Project was formed. The DAPA panel found that DoD's acquisition, budgetary, and requirements processes are not organizationally integrated at any level below the Deputy Secretary of Defense (DEPSECDEF).[18] As a result, DoD officials often fail to consider the impact of requirement decisions on the resourcing and acquisition processes. Likewise, DoD leaders are unable to make beneficial tradeoffs among cost, schedule, and requirements on major defense acquisition programs. Also during this period, DoD, was managing two wars—Iraq and Afghanistan. As such, DoD lost some discipline in analyzing its strategies against available resources. DoD was able to resource its strategies and operational objectives because Congress provided DoD, in addition to base funding, with supplemental or Overseas Contingency Operations (OCO) funding. Clearly, this approach was driven by current threats and

urgency facing the nation. Nevertheless, DoD did not practice fiscal discipline during this period—providing warfighter's with unequal access to state of the art weapon systems and force protection enablers was DoD's number one priority. Clearly, future strategies will not have the luxury to be resourced with OCO funding. DoD will have to reset and modernize the force with limited and structured resources. DoD will not be able to ignore the fact, that 12 years of prolonged war has impacted DoD's transformation and modernization strategies. In order to get back on course, DoD will need to take a measured approach to bring its strategies to fruition by prioritizing and accepting risk when reassessing its programs within the capability portfolios—affordability will be of utmost importance.

In September 2008, the DEPSECDEF mandated that all DoD services manage programs in accordance with Capability Portfolio Management (CPM) guidelines.[19] The CPM policy was designed to synchronize and align the JCIDS, PPBE, and DAS systems during the planning process that had fundamentally failed in the past to include or operate on the same budget timelines. Of further significance, this imbalance in the DoD's requirements, resource, and acquisition process caused many DoD programs within the capability portfolios to be unaffordable at the start of the program. The DEPSECDEF issued the CPM policy to optimize weapon systems investment accounts and reduce the risk of future cost overruns and schedule delays. This policy was the first step to restore the faded fiscal discipline in the acquisition process. But, was it too late?

In April 2009, the Gene L. Dodaro, Comptroller General of the United States, testified before the House of Representatives Panel on Defense Acquisition Reform,

Committee on the Armed Services, that DoD's portfolio of 96 major defense acquisition programs cost growth exceeded $296 billion and the average delay in delivering capabilities was 22 months.[20] As a result, other critical defense systems and capabilities supporting national security goals are unfunded because DoD's investment accounts are locked into failing programs. However, the Government Accounting Office's (GAO's) methodology for calculating cost growth can be a little misleading. For example, if a program's procurement quantity changes then GAO considers that a cost growth. Secondly, if a program's past cost performance was poor, however, its current cost performance is good, the positive change is not taken into consideration and the program is still classified as having cost growth. Former USD AT&L, John Young, stated: "I have analyzed the components of this GAO number, and I would suggest that the number is misleading and out-of-date."[21] However, GAO and USD AT&L are in agreement that there are some programs that are not affordable and are incurring enormous cost growth— the Joint Strike Fighter (F-35) and the Raptor (F-22) are two such examples.[22] The truth is that cost growth impacts the warfighter and casts a shadow on DoD's requirements, resourcing, and acquisition planning processes. Cost growth must be understood and controlled. DoD's requirements, resourcing, and acquisition process is out of balance, which impacts DoD's ability to procure affordable products, thereby making capability portfolios short in fulfilling requirements identified by the warfighter.

The Acquisition Processes: Requirements, Resourcing and Acquisition

The National Security Strategy (NSS) is a comprehensive report required annually by Title 50, USC, Section 404a.[23] The NSS is prepared by the Executive Branch for Congress; it outlines the major national security concerns and indicates how

the administration plans to address them using all instruments of national power. The NSS is purposely general in content, and its implementation relies on elaborating guidance provided in supporting documents such as the National Military Strategy (NMS).[24] A valid national strategy must increasingly consider the actions of potential allies and threats, global economic changes, domestic spending needs, foreign policy and aid, and homeland defense.[25] The current NSS cites fiscal responsibility and the need for tough choices on procurements; it also specifies the need to eliminate wasteful spending and duplicative programs. The NSS requires DoD to provide more contract oversight.[26] As such, the President's strategy suggests DoD will be required to scrutinize the programs supporting its capability portfolios and either terminate or restructure those that are outdated, duplicative, ineffective, or simply wasteful.[27]

The NMS, derived from the NSS, prioritizes and focuses the efforts of the armed forces.[28] The NMS conveys the Chairman Joint Chiefs of Staff's (CJCS') advice with regard to the security environment and his specification on military actions needed to protect vital U.S. interests.[29] The United States may not face peer threats in the near to mid-term, but it faces a wide variety of lesser threats that make maintaining and effective military force to protect U.S. national security interest.[30] The NMS specifies the national military objectives, indicates how to accomplish these objectives, and identifies the military capabilities required to execute the strategy.[31] The NMS provides focus for military activities by defining a set of interrelated military objectives and joint operating concepts. The Service Chiefs and Combatant Commanders (CCDRs) use this guidance to identify desired capabilities to assess the military risks posed in the NMS.[32] The CJCS utilizes the JROC as a joint forum for planning the NMS and to set priorities, to

approve capabilities, and to identify needed resources. The CJCS's final decision is then integrated into capability portfolios.

The PPBE process, the JCIDS process and the DAS process make-up DoD's decision support system. The decision support system broadly makes up DOD's overall defense acquisition management framework. It is the framework that defines the acquisition process; its requirements, its priorities, its capabilities, and its resources.[33]

The PPBE system is designed to ensure decisions are based on national interest and to deliver desired capabilities consistent with designated cost objectives. PPBE is intended to provide Combatant Commanders with the best mix of forces, equipment, and support within fiscal constraints; the PPBE process shapes DOD's budget for all defense acquisitions.[34] On the other hand, the JCIDS process focuses on capabilities with no cost constraints. The DAS process aim is focused on the development and delivery of a capability to the nation. The DAS process uses affordability analysis to ensure a requirement is economically feasible.[35] So, when these three processes execute serially then gaps and seams inadvertently appear between capability assessments, programming, resourcing, and acquisition. As such, capabilities are determined subjectively by capability portfolio managers and are not constrained to a cost cap. However, resource managers, disconnected from the JCIDS process, provide questionable cost estimates, in an attempt to assure that the capability can be supplied to the warfighter in a given period of time. This inadvertently shifts questionable cost and schedule requirements to acquisition managers who have to manufacture the capability. Then, the vicious cycle of cost growth commences—poor cost estimates are done, unrealistic expectations are

created, and often immature technology is folded into the schedule requirement. As such, acquisition managers are left with managing failing components of a program from their inception.

The procedures within DoD's decision support system inform the Secretary of Defense (SecDef) in decisions to identify, to assess, and to prioritize joint military capabilities. Capability portfolio requirements are validated during the JCIDS process; these validated requirements then inform planners in the PPBE and DAS processes. The goal of this overall process is to arrive at the right mix of forces, modernizations, and equipment in order to support the goals stipulated in the NSS and NMS. Unless DoD reforms the JCIDS, PPBE, and DAS processes and makes them less bureaucratic and more responsive to cost and schedule constraints, DoD will continue to experience cost and schedule overruns in its capability portfolios. The JCIDS, PPBE, and DAS processes were designed to synchronize requirements, resourcing, and acquisition in order to meet the goals established in the NSS.[36] Today, the JCIDS, PPBE, and DAS processes are not functioning as their designers intended. The systems rarely intersect during the planning process, and they contribute to cost and schedule overruns in the majority of DoD's programs that are nested in DoD's capability portfolios.

In 2011, Senator John McCain articulated this problem to Congress:

> To be clear, the military-industrial-congressional complex does not cause programs to fail. But, it does help create poorly-conceived programs — programs that are so fundamentally unsound that they are doomed to be poorly executed. "By 'poorly conceived', I mean major programs that are allowed to begin despite having insufficiently defined requirements; unrealistic cost or schedule estimates; or unrealistic performance expectations.[37]

Senator McCain's comments are profoundly accurate. He affirms that the JCIDS, PPBE, and the DAS processes are not crafted in parallel. They rarely intersect during

the planning process; they contribute to programs cost and schedule overruns in DoD's capability portfolios. Requirements managers, resource managers, and acquisition managers must conduct and manage these three activities in parallel; they must assure these activities remain balanced and interlocked. The long and difficult task of laboring in the joint force development vineyards is massive and immensely complex. These processes can easily be subjected to different urgencies, priorities, and resource criteria; these interferences then lead to disparate requirements and insufficient resources during the planning phase of the acquisition system. Ultimately they make military capability portfolios unaffordable. The CJCS and the Military Service Chiefs need to acknowledge the threat of the nation's fiscal crisis when designing their modernization strategies; it is currently the major factor in the ways and means is crafted to deliver required capabilities to the field. Therefore, getting requirements, resources, and acquisition processes aligned to the NSS and NMS is becoming more important now as DoD draws down its force structure and shifts to resetting and modernizing the force. Now, DoD's drawdown plans appear to be on par with the drawdown levels the United States has experienced in post-war periods, however the last 12 years of war have depleted modernization accounts and the cost of personnel has risen to over 50%. Making this drawndown unique and decisions on cuts and modernization will have to be prioritized. This is something our nation has not seen in post war periods—DoD cannot cut everything equally, it must make prioritized choices.[38]

In the 2012 GAO's annual assessment of the DoD's 2011 capability portfolios, Gene Dodaro, U.S. Comptroller General, reported major acquisition programs had a

cost growth of $74B dollars, or 5%, in a one year period. Further, over 60% of programs assessed had lost buying power as measured in increases in program acquisition unit cost (PAUC).[39] Although, GAO and USD AT&L have disagreed in the past on the methodology used to calculate growth, they both agree on using PAUC metric to measure cost growth.[40] These issues of programs' experiencing enormous cost and schedule growth cannot continue as there will be limited resources in the future to bail the programs out. In 2013, defense spending will drop to 3.3 % of the nation's Gross Domestic Product (GDP). In 2010, defense spending was 4.7% of the nation's GDP.[41] In 2013, it is projected that the OCO funds will be reduced to $82.5B, down from the nearly $115 billion in 2012.[42] DoD has an on-going internal cost growth in its operation and maintenance (O&M) and military personnel accounts. These internal cost growths are reducing DoD's purchasing power and this limits DoD's ability to procure the quantity of weapon systems it needs to fill its capability portfolios—buying less with less is not an affordable business model. In the future, Military Services will not have the luxury to return to Congress and request additional resources for their failing programs. If program cost growth trends continue, then DoD will have to offset its cost and schedule overruns by restructuring, terminating or eliminating products in its capability portfolios. There simply won't be the additional resources provided through Congressional authorizations and appropriations as seen in the Iraq and Afghanistan war periods.

In a speech delivered to the Center for Strategic and International Studies (CSIS) in February 2012, USD AT&L, Frank Kendall addressed some needed changes to the requirements process: "We really need to bring acquisition and technical organizations

and requirements and operational communities together so that they iterate and discuss requirements so that people don't just set pie in the sky requirements, but they are rooted in some realism about what things actually cost and how hard are they to do."[43] Senator McCain, USD AT&L Kendall, and Comptroller General Dodaro have expressed an overarching concern regarding the requirements, resourcing, and acquisition processes.[44] They believe that current requirements, resourcing, and acquisition processes are not interlinked and rarely intersect.[45] The acquisition system does a fairly good job of identifying required capabilities, but it does not do an adequate job on informing leadership on the affordability of such required capabilities.

So What Changes Are Needed in Defense Acquisition

DoD has been haunted with the fact that acquisition reform has not taken much traction in defense spending over the last 60 years. Therefore, DoD must institute changes in its organizations, its culture, and its business practices to ensure national and military strategy is linked to affordable programs. First, the organizational structure in the JROC needs revisited and a consortium of joint experts formed to make informed investments in the modernization accounts. Secondly, DoD and all the Military Services must create a culture which will address affordability throughout the acquisition system in order to control cost growth. Finally, DoD must implement, monitor, and enforce USD AT&L's BBP initiatives in order to develop effective procurement programs and cost controls.

Organizational Changes

The U.S. Special Operations Command (SOCOM) Acquisition Rapid Response Medical Team implemented a joint integrated acquisition structure when defining requirements, resourcing, and acquisition for its Casualty Evacuation System

(CASEVAC). SOCOM delivered CASEVAC to the warfighter in three years—resulting in pioneering life saving capabilities to the forces.[46] One approach to synchronize the requirements, resourcing, and acquisition process is for the CJCS to form Joint Integrated Capabilities Teams (JICT) that can address requirements and capabilities across the Doctrine, Organization, Training, Military, Leadership and Education, Personnel, Facilities, and Policy domains. The JICT would include members of all Military Services; its members would represent communities with specific experiences in requirements, resourcing, force management, financing, economics, contracting, operations and testing, the industrial base, academia, science and technology, comptrollers, and defense policy-makers. The JICT would provide insights on costs, schedules, and risks early in the planning process and identify affordable alternative capabilities. The JICT would serve as the critical synchronization point between policy makers, strategic planners, operational force commanders, and the resource and acquisition community. The JICT would ensure that the most efficient, effective, and readily available technological capabilities are utilized. As such, it could determine the level of investments that are needed to support the life cycle cost of the products nested in the capability portfolios—cradle to grave cost. The JICT would bring the JCIDS, PPBE, and DAS systems into alignment in a parallel engineered process. Furthermore, the JICT would have the authority to make mission centric investments—not service specific investments. The joint team's structure and charter could begin the laborious task to reduce or eliminate duplicative and failing programs across DoD's capability portfolios. This approach integrates affordability at the program's inception by selecting realistic requirements in the planning process. More broadly, the CJCS would then be

able to prioritize and resource “must have” capabilities with affordable solutions to meet the goals and objectives in the NSS and NMS.

Another possible organizational change is to give CCDRs more authority in requirements and resourcing domains thus allow Service Chiefs to focus more on the procurement process with industry and Congress. Given the past systemic failure of all Military Services to efficiently manage their acquisition programs, this approach could break down the cultural barriers that have plagued the DoD machine for the last 60 years. The DoD and Military Service Chiefs’ brinksmanship regarding the requirements, resourcing, and acquisition process has escalated dramatically in recent years, weighing heavily on the confidence that the CCDRs have the right mix of capabilities to meet strategic objectives. Under this revised concept, the CCDRs would have the authority and responsibility to identify requirements, capability gaps, and resources to support their area of responsibility (AOR). CCDRs could horizontally coordinate with their other CCDRs to assess mutual requirements and share resources. DoD’s strategic choices should be joint choices made by the CCDRs and Military Services are more suited as enablers to resource these joint strategic choices.[47] This strategic shift from Military Service-managed capability portfolios to a CCDR-managed capability portfolios can preserve DoD’s modernization accounts and it also can mitigate interservice rivalry.

It is clear the DoD and the Services need to develop integrated plans to address the rising costs in defense spending. In contrast, it is unclear whether the JICT’s or the CCDR’s concepts mentioned above would produce cost savings. However, it is all too clear that the current practices are not producing a measurable reduction in the cost of DoD’s requirements, resourcing, and acquisition process. The balance between

available national resources and national security needs has never been more delicate. The pending defense cuts of nearly $259B between 2013-2017 will force DoD to reconsider its defense strategy or its defense spending. Changing the defense strategy now is not warranted given the security threats facing the nation. So, defense spending reform is the most feasible solution—how DoD implements this reform within its vast array of acquisition organizations is still unclear.[48]

Cultural Change

In the 1970s, Deputy Secretary of Defense, David Packard approved the Lightweight Fighter Program (LWF) that developed and acquired the A-10, F-15 and F-16 for the U.S. Air Force.[49] His leadership and vision demonstrate how a change in acquisition culture can produce capable and affordable weapon systems.[50] Packard's approach created a climate in which the Air Force assumed key leadership and decision making roles in setting requirements.[51] Its program execution was decentralized; authority was pushed down to the level of the Air Force Program Office.[52] The requirements and resourcing functions played support roles; they were tailored upfront and focused on an initial operating capability. Congress provided stable and predictable funding, and industry partners provided realistic expectations in their cost and schedule estimates. A culture of trust and commitment was established across the acquisition waterfront. Therefore the military-industry-congressional complex was synchronized at program inception; it had fostered a cultural commitment to joint problem-solving and risk-taking. Risk, program opportunities, and challenges were vetted within the Air Force; they were taken to SecDef and Congress only as required.[53] Accordingly, the F-16's first flight test was conducted two years after contract award, and the first operational aircraft was delivered to the Air Force two

years after first flight. Today, DoD's product delivery times are not even close to this number.[54]

Packard's leadership and influence created a culture of cooperation and support in the LWF program at all levels. IBM's Chief Executive Officer and Chairman Thomas Watson Sr., amplified the significance of a positive culture in the workforce: "people are committed— committed to their company, and committed to what their company does. Culture isn't just one aspect of the game—it is the game."[55] Packard, like Watson, realized the importance of culture in achieving transformational goals and objectives similar to those cited in the WSARA. Effective reform requires embedding leadership actions and institutional processes in the departments' requirements, resourcing, and acquisition processes. The LWF program succeeded because David Packard transformed the Air Force's acquisition culture. The Air Force produced a high performing, technologically advanced, and affordable fighter jet to its fighter squadrons — on time and within cost.

As of 2010, DoD's F-35 Lightning Program known as the Joint Strike Fighter (JSF) Program was experiencing schedule delays, exceeding its cost estimates, and not performing as expected. USD AT&L cited flawed programmatic and technological assumptions at the program's inception and a culture of reluctance to accept unfavorable information.[56] The F-35 program is scheduled to develop and field the next generation strike fighter aircraft to the Navy, Air Force, Marine Corps and U.S. allies.[57] One of the goals of the F-35 program is for it to be affordable. In 2010, USD AT&L reported a 57% cost increase in the F-35 program. Gary Bliss, Director of Performance Assessments and Root Cause Analyses reported, "Very aggressive and concurrent

development schedule was assumed to meet externally mandated initial operating capability (IOC) schedules and challenges with integrating multi-service requirements were driving cost growth."[58] So IOC's schedule and technical requirements caused resource and acquisition misalignment at inception of the JSF program. In 2011, the cost of the F-35 rose 78% above its original baseline estimate. Ten years after the engineering, manufacturing and development contract was awarded to Lockheed Martin, the Air Force has only received nine aircraft — it was scheduled to receive 83 aircraft by 2013. The JSF program's cost and schedule performance fall short of the 1970s LWF program. The culture parity between DoD, U.S. Air Force and industry needs to model an open and transparent culture, embedded with strong relationships, and candid communications. The 1970s, LWF program provides an excellent model. Using this model, strategic leaders can work through complex problems by negotiating amongst each other for a common cause. More importantly, the Air Force will foster healthy partnerships with DoD and Industry and build a trusted culture across the military-industry-congress complex.

Acquisition reform takes time—DoD has been at it for over 60 years. In order to get traction and forward momentum short term wins must be achieved. Employment of negotiation in the acquisition decision-making cycle could offer DoD these short term wins. Negotiations bring logic and reasoning to the table by clarifying services' interest in an objective manner and to reach end states that meet affordability cost caps, while fulfilling the CJCS's direction to confront what the profession of arms means in the aftermath of war. Budget austerity will not disappear, so DoD leaders need to employ an array of cultural competencies to create win-win solutions. If DoD wants to remain

relevant in the current global environment, then leaders' interpersonal competencies must become a practiced standard in the requirements, resourcing, and acquisition planning process.

Once DoD's strategic leaders adopt negotiations techniques in its acquisition planning and it looks for opportunities to find solutions that address mutual interests DoD will begin to create short term wins and set a path for long term wins in its modernization programs. The traditional approach of one community drawing a line in the sand to force either a win-lose or lose-lose decision does not benefit the warfighter, DoD, the taxpayer or the nation. Most people won't go on the journey of making tough choices during reform periods if they are not seeing compelling evidence within six to eighteen months that the journey is producing expected results.[59] The F-35 program is a perfect example of how inadequate negotiations between military-industry-congress contributed to cost overruns, schedule delays and ill conceived requirements which all combined contributed to growing product's unit acquisition cost to prohibitive levels. As shown in Figure 2, a programs typical acquisition path with consistent and predicable resources, requirements, and acquisition, compared to an acquisition path whereas frequent changes, unstable design, late requirement changes lead to late longer delivery and higher cost to a program. The F-16 followed the typical acquisition path and it was considered a successful program. Packard used interpersonal skills and created a climate where realistic requirements were agreed too. Packard's interpersonal skills flowed into the execution phase of the F-16 program and contributed to keeping cost and schedules to acceptable levels.

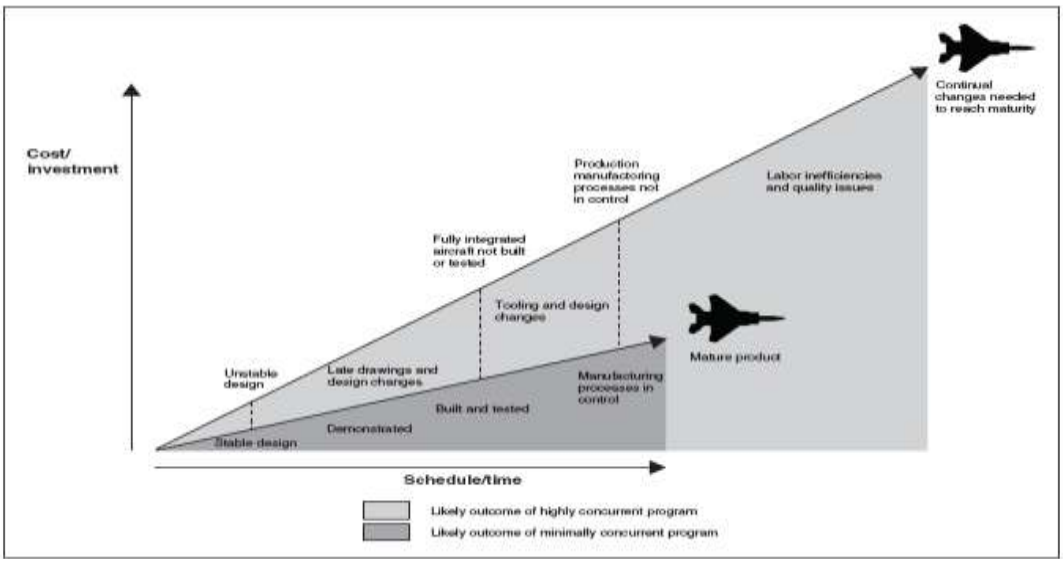

Figure 2. Cost Growth Over Time as Program Experiences Design, Development and Fielding Obstacles. [60]

DoD leaders' stewardship of scarce resources will require a realistic acknowledgement that DoD interest must outweigh the interests of any one service, organization, or individual. This cultural awareness creates a bridge from self-interest to institutional interest. Likewise, this bridging technique will enable DoD to build partnerships and establish trusted coalitions in support of national security goals and objectives specified in the NSS and NMS. Furthermore, it will enable DoD to create opportunities at all levels of management to develop sets of strategic eyes, to encourage everyone involved in the institution to assume ownership of affordability problems and identify possible solutions. On February 14, 2012, the JROC met and made some important requirement decisions regarding the F-35 program. It clearly changed the culture by negotiating a change to the Short Take-Off Vertical Lift (STOVL) F-35 aircraft take off requirement. The JROC negotiated using objective modeling and came to a consensus the requirement for a 600 foot take-off was an overstated requirement and not affordable. The 600 foot take-off requirement would require a more

powerful engine and would increase weight for the F-35 STOVL aircraft—two significant cost drivers to the program. The council determined that a 550 foot take-off requirement was sufficient. JROC evaluated a requirement against a capability gap, fiscal constraints, and affordability and made a decision based on a consensus of its members to change a key performance parameter on the F-35 STOVL aircraft. The JROC and the diverse culture that makes up the council informed others that awareness of cost at all levels of the requirements, resourcing, and acquisition must be the norm in DoD. In the case of the F-35 STOVL requirement change, DoD created a win-win situation for the military-industry-congress complex. DoD must continue to incorporate affordability in all its requirements, resourcing, and acquisition activities—this is critical to the warfighter, the taxpayer, DoD, and the nation. According to USD AT&L Kendall:

> Building partnerships with the requirements community is an area of continuing emphasis, but more needs to be done. More than anything else, requirements drive cost. The requirements and acquisition communities must cooperate more closely and continuously to ensure that requirements are technically achievable and affordable so that operational and Service leadership can make informed decisions about their acquisition programs.[61]

Cultural and organizational changes can influence the affordability of DoD programs, however, these two changes will be the most difficult to achieve. If DoD can change its cultural and organizational behaviors then changes in its business practices will have a better chance of succeeding too.

Business Practice Changes

To address affordability, JROC could direct its functional control boards to review its capability portfolios and make plans to reduce redundant capabilities amongst the services. The Joint Staff Director for Force Structure, Resource, and Assessment / J8 can then examine and modify investment and procurement portfolios and acquire a

broader understanding of requirements driving investments across portfolios. Such a review will also inform senior DoD officials of over investments and under investments in its capabilities portfolios. The savings from these on-going reviews will be accrued over time. Reconciliations of redundancies are not intended to save a specified amount of the base budget or to defend an investment. Rather reconciliations ensure funds are programmed, budgeted, and executed according to validated requirements. These reviews provide opportunities to preserve cost and identify acceptable risk to meet the goals and objectives specified in the NSS and NMS.

In 2009-2010, the Army started the process of conducting a comprehensive reviewing of its capability portfolios. The purpose of the reviews are to examine, validate, modifying or recommend termination of requirements driving the acquisition process.[62] The Army's review of its Precision Fires capability portfolio assessed the balance of high-end precision munitions and lower-end near-precision munitions. The Army determined that the Non-Line-of-Sight Launch program did not provide an affordable precision fire capability.[63] The Secretary of the Army then canceled the program. The Army's approach to requirements verification and validation should be modeled across DoD—it provides a means to bring affordability back to the acquisition process.

The case studies of DoD's Unmanned Aircraft Systems (UAS) and the Army and Navy's Joint Air to Ground Missile (JAGM) programs demonstrate the value of inter-service and intra-service communication and cooperation during the requirement, resourcing, and acquisition processes. The UAS and JAGM programs are examples of where DoD can make affordable decisions and still meet the objectives in the NSS and

NMS. The UAS and JAGM are just two of many programs in DoD's capability portfolio that if reviewed could preserve scarce U.S. tax dollars while optimizing force readiness, while supporting modernization planning, and while reducing life cycle costs associated with capability portfolios. Until the JROC has developed and fully documented an approach for prioritizing capability needs and aligning these needs with available resources it will not be in the best position to align resources with priorities or balance costs with benefits in affordable investment plans.[64]

Today, the Air Force and Army UASs are employed to conduct offensive, irregular warfare by means of high value target and high value individual prosecution.[65] USD AT&L has stated that a new business practice of reducing redundant capability portfolios will save DoD significant resources by synergistically using joint assets, by leveraging the industrial base, and by normalizing the logistics footprint.[66] As such, if the Army and Air Force consolidate their portfolio it can bring win-win solutions to DoD. Either service has the capacity and capability to be the executive agent for the UAS program so that is not the issue. The concern is that there are too many different types of UAS systems being built. Figure 3 illustrates the depth and breadth of UAS systems across the DoD enterprise. DoD needs to review and examine its UAS mission sets and determine if there are redundant capabilities being built for the Armed Forces. The final years of the last decade saw an inter-service fight between the Air Force and the Army on which service should control the UAS programs. Senior officials in the Air Force argued executive management was its responsibility. Senior officials in the Army argued that it needed to retain executive agent responsibilities for the Army's UAS programs—no duplication of effort exists.[67]

DoD Unmanned Aircraft Systems (As of 1 JULY 2011)

General Groupings	Depiction	Name	(Vehicles/GCS)	Capability/Mission	Command Level
Group 5 • > 1320 lbs • > FL180		•USAF/USN RQ-4A Global Hawk/BAMS-D Block 10 •USAF RQ-4B Global Hawk Block 20/30 •USAF RQ-4B Global Hawk Block 40	•9/3 •20/6 •5/2	•ISR/MDA (USN) •ISR •ISR/BMC	•JFACC/AOC-Theater •JFACC/AOC-Theater •JFACC/AOC-Theater
		•USAF MQ-9 Reaper	•71/85* *MQ-1/MQ-9 some GCS	•ISR/RSTA/EW/ STRIKE/FP	•JFACC/AOC- support Corps, Div, Brig, SOF
Group 4 • > 1320 lbs • < FL180		•USAF MQ-1B Predator	•165/85*	•ISR/RSTA/STRIKE/FP	•JFACC/AOC-Support Corps, Div, Brig
		•USA MQ-1 Warrior/MQ-1C Gray Eagle	•31/11	•(MQ-1C Only-C3/LG)	•NA
		•USN UCAS- CVN Demo	•2/0	•Demonstration Only	•NA
		•USN MQ-8B Fire Scout VTUAV	•14/8	•ISR/RSTA/ASW/ ASUW/MIW/OMCM/ EOD/FP	•Fleet/Ship
		•SOCOM/DARPA/USA/USMC A160T Hummingbird	•8/3	•Demonstration Only	•NA
Group 3 • < 1320 lbs • < FL180 • < 250 knots		•USA MQ-5 Hunter	•45/21	•ISR/RSTA/BDA	•Corps, Div, Brig
		•USA/USMC/SOCOM RQ-7 Shadow	•368/265	•ISR/RSTA/BDA	•Brigade Combat Team
		•USN/USMC STUAS	•0/0	•Demonstration	•Small Unit
Group 2 • 21-55 lbs • < 3500 AGL • < 250 knots		•USN/SOCOM/USMC RQ-21A ScanEagle	•122/13	•ISR/RSTA/FORCE PROT	•Small Unit/Ship
Group 1 • 0-20 lbs • < 1200 AGL • < 100 knots		•USA / USN / USMC / SOCOM RQ-11 Raven	•5628/3752	•ISR/RSTA	•Small Unit
		•USMC/ SOCOM Wasp	•540/270	•ISR/RSTA	•Small Unit
		•SOCOM SUAS AECV Puma	•372/124	•ISR/RSTA	•Small Unit
		•USA gMAV / USN T-Hawk	•270/135	•ISR/RSTA/EOD	•Small Unit

Figure 3. UAS Capability by Service and by Mission Sets. (A review of DoD's UAS programs could identify some levels of duplication and therefore provide DoD with an opportunity to save millions of dollars by eliminating redundant capability).[68]

The CJCS needs to conduct a joint portfolio review for all its services' UAS programs. If DoD officials assess there are duplication of efforts in place that are causing excess expenditure of resources then DoD needs to eliminate the duplication. and potentially make the choice to consolidate programs and eliminate others. DoD officials need to require its military service chiefs to focus on affordability as a driving factor and to formulate acquisition strategies that are jointly tailored based on mission

sets. Affordability and cross-domain synergy of capabilities like the services' UAS programs are worth exploring. Decreases in defense funding and an increase in Congressional scrutiny in defense spending will require services to be more accountable with taxpayer's money. This new practice will require services to focus on affordability as a driving factor to formulate acquisition strategies that are jointly tailored and based on mission sets. Current laws, policies, and strategies are written to preserve national resources. So cost savings could be realized if the Air Force and the Army portfolios merge into one joint capability portfolio; then one service is designated as the executive agent to manage requirements, resources, and acquisition of the portfolio.

The Joint-Air-to-Ground Missile (JAGM) is a joint Army and Navy program with Marine Corps participation. JAGM will replace HELLFIRE, Maverick and air-launched TOW missiles.[69] In September 2008, the Department of Defense awarded two technology development contracts one to Lockheed Martin and one to Raytheon-Boeing. The purpose of selecting two contractors was to have a competitive technology development phase and then select the contractor whom best demonstrates their ability to design and produce the final product.[70] In August 2012, DoD senior leaders determined the JAGM program was not performing as required and its cost was exceeding its original baseline estimates. The JAGM program has since been scaled backed as the Army officials have stated that the service might not be able to afford it at this time. Army officials have stated the HELLFIRE missile, which JAGM is to replace has been performing well in combat operations.[71] USD(AT&L) Frank Kendall and PEO Missiles and Space (M&S), BG Ole Knudson have opted to extend the JAGM technology development phase and modify its existing HELLFIRE missile with a dual

mode seeker capability—incremental approach to deliver enhanced capability.[72] PEO M&S have illuminated that too much risk early in the JAGM program could potentially delay getting capabilities to the warfighter and increase cost to the taxpayer. Calculating risk and making tradeoffs in requirements is prudent in times of fiscal austerity. DoD estimates it will save $1.6B, from 2013-2017 by restructuring the JAGM program and incremental advancing the HELLFIRE missile with dual mode seeker capability. [73]

USD AT&L Approach to Affordability

The USD AT&L is taking refreshing and forward thinking approaches to determine whether acquisition programs begin, by addressing and analyzing affordability during the requirements, resourcing, and acquisition planning process.[74] USD AT&L is cultivating a culture of change, specifically in the area of affordability. On November 13 2012, USD AT&L, Frank Kendall issued BBP 2.0—Continuing the Pursuit for Greater Efficiency and Productivity in Defense Spending. His direction to the DoD acquisition workforce was to continue to focus on: enforcing affordability caps on programs, building stronger partnerships with the requirements community, using the technology development phase to reduce risk for new starts, identifying and reducing redundant capability, and increasing the cost consciousness of the acquisition workforce—change the culture.[75] The basic goal of BBP 1.0 and 2.0 is to deliver better value to the taxpayer and the warfighter by improving the way DoD conducts business.[76] Given the cloud of uncertainty hovering over our national economy DoD must continue to institutionalize these initiatives during the JCIDS, PPBE, and DAS processes. Without this level of implementation then DoD policies will most likely fade in importance, thereby transformation and modernization of DoD's force structure will literally not materialize.

Conclusion

Developing time-tested joint capability portfolio reviews obliges DoD leaders to build a consensus on what is needed in the field and what is affordable. DoD leaders need to prioritize “must have” requirements against “desired” requirements in the context of available resources. DoD leaders have become accustomed to building capability portfolios without much regard for the product’s affordability. DoD leaders need to address affordability throughout the JCIDS, PPBE, and DAS processes. The acquisition system should provide DoD with the ability to analyze, prioritize, and resource the services’ capabilities and inform the services on where to take acceptable risks. Even though DoD has implemented some affordability initiatives, more must be done to improve affordability across the requirements, resourcing, and acquisition process. If affordability is not accurately addressed specifically in the planning phase, then it will be difficult to produce the military capacity and capability needed to fight and decisively win America’s wars. Cost growth that makes a DoD program unaffordable translates to lost defense capacity and capability to the nation. Our military capability portfolios will continue to be developed to address current and future threats to our national security. The current economical frailty plaguing the United States is pressing DoD to do more without more resources. The observations of cost growth, unrealistic requirements, and inability to deliver capabilities have reached alarming levels. While DoD has implemented some affordability initiatives, more must be done across organizational, cultural, and business practices lines of effort. Only then will DoD meet the goals and objectives articulated in the NSS and NMS.

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