

DEFENSE ACQUISITION AND BUDGETING: INVESTIGATING THE ADEQUACY OF LINKAGE BETWEEN SYSTEMS

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ABSTRACT

In this article we assess evidence and test the hypothesis that the complicated architecture and processes of national defense planning, programming, budgeting and execution and the defense acquisition decision system produce system linkage weaknesses that lead to unintended and negative consequences for defense acquisition and procurement. The purpose of this article is to identify key points of linkage weakness and failure between DOD financial management and acquisition decision systems, and then suggest how reengineering and realignment might be approached to resolve some of these problems. We first describe the key components of the defense planning, program, budgeting and execution system (PPBES) decision process. We then provide an analysis of recent changes to PPBES. Next, we describe the defense acquisition system (DAS) in detail. Then, relying on independent assessment of system relationships and data gathered from interviews with system participants, we identify systems linkages and areas of misalignment between the PPBES and the DAS. Finally, we provide conclusions with respect to our hypothesis and analysis of consequent key problems and issues to be addressed by top level DOD leadership.

INTRODUCTION

The purpose of this article is to conduct an analysis of how DOD resource management and acquisition decisions operate and to identify key points of linkage weakness or failure between these systems. We first describe the PPBE system and decision process. We then provide an analysis of recent changes to PPBES. Next, we describe the defense acquisition system (DAS) in detail. Then, based on independent assessments of system relationships and data gathered from interviews with system participants, we identify systems linkages and areas of misalignment between the PPBES and the DAS. Analysis of consequent key problems and issues leads us to render conclusions with respect to our hypothesis on how DOD budgeting and acquisition decision making might be improved through reengineering and realignment.

PROBLEMS WITH DOD BUDGETING AND ACQUISITION MANAGEMENT SYSTEMS

On March 7, 2001, in testimony before Congress, Comptroller General David Walker testified that the United States Department of Defense was the best in the world in its primary mission—that of warfighting; but, in the same testimony, Walker assigned the DOD a failing grade in economy and efficiency: “At the same point in time, the Department of Defense is a D plus as it relates to economy and efficiency.” Walker continued, “the acquisitions process is fundamentally broken, the contracts process has

got problems, and logistics as well” (McCaffery & Jones, 2004, p. 335). The Government Accountability Office (GAO) estimated that the Department of Defense (DOD) had spent \$146 billion in developing and acquiring weapons in 2004. Moreover, the GAO warned that, as a result of inefficient systems and practices, the DOD invited a series of troubling outcomes: “Weapon systems routinely take much longer to field, cost more to buy, and require more support than provided for in investment plans” (GAO, 2005a, p. 68). GAO staff observed:

For example, programs move forward with unrealistic program cost and schedule estimates, lack clearly defined and stable requirements, use immature technologies in launching product development, and fail to solidify design and manufacturing processes at appropriate junctures in development. As a result, wants are not always distinguished from needs, problems often surface late in the development process, and fixes tend to be more costly than if caught earlier. (GAO, 2005a, p. 68)

Defense acquisition has long been beset by problems related to both politics and efficiency. Numerous reforms since the 1950s have attempted to improve the acquisition process. Recent reforms including more open competition, streamlined acquisition procedures, elimination of obsolete regulations and more effective program management are some of the substantial changes made in the DOD in the last ten years to improve acquisition budgeting and management. Establishing open competition also is a significant part of recent acquisition transformation initiatives. Changes in acquisition information technology (resulting from the passage of the Clinger-Cohen Act), the use of cost as an independent variable as a means of reducing acquisition costs, and spiral acquisition practices are other changes expected to yield positive results.

Congressional and DOD transformation initiatives under Defense Secretary Donald Rumsfeld have focused on greater reliance on commercial products and processes and more timely infusion of new technology into new and existing systems. Commercial product usage is implemented with an understanding of the complex set of impacts that stem from use of commercial off-the-shelf technology (Oberndorf & Carney, 1998). Procurement solicitation requirements are written to include performance measures. If military specifications are necessary, waivers must first be obtained. Solicitations for new acquisitions that cite military specifications typically encourage bidders to propose alternatives. The DOD has made significant progress in disposing of a portion of its huge inventory of military specifications and standards through cancellation, consolidation, conversion to a guidance handbook, and replacement with performance specifications and non-government standards.

Despite all of this change, the primary criticisms of the acquisition process remain—that it is too complex, too slow, and too costly (Barr, 2005). In some cases it also may produce weapons that are “over-qualified” or irrelevant to the task at hand when they are finally put in the field because the threat and warfighting environment have changed since acquisition and procurement decisions were made to contract for weapons platforms, systems and components. Annual budget cycle procedures and politics within the DOD and between the DOD and Congress add complexity, turbulence and some degree of confusion to this mix.

THE DEFENSE FINANCIAL RESOURCE DECISION SYSTEM

For four decades, the Department of Defense has developed resource plans and budgets using the Planning, Programming, Budgeting System, or PPBS. This system integrates warfighting requirements, the programming for acquisition of assets including airplanes, ships, and tanks, and the specification of annual budget amounts needed to operate the Department of Defense. These latter amounts are converted in appropriation categories and passed along to Congress in the President's budget. Various documents, planning processes and iterations fulfill the mandates of the system.

The Planning, Programming, Budgeting and Execution system (now PPBES—see below) is comprised of a series of multistage and multilevel processes that cumulatively allow the DOD to determine capability and needs based on strategic doctrine. It provides the process for decision making on defense programs required to meet deterrence and warfighting demands, and the financing necessary to acquire and sustain capability. The complexities and machinations of the system confound both participants and observers. This is due both to the tangled web of overlapping processes that make up the PPBES and to the sheer size of the budget in terms of numbers of programs, as well as the amounts of money involved. This is compounded by the need to meet a series of deadlines to keep the process on schedule to produce a defense budget for the President and Congress. Congressional appropriation restrictions also create difficulties in the process because Congress provides money differently than the manner in which the DOD budgets (McCaffery & Jones, 2004).

In overview, the PPBES consists of four separate sub-systems: planning, programming, budgeting and execution. Program and budget review operate roughly simultaneously. Program and budget review are shaped by decisions made by DOD senior executives in the Strategic Planning Guidance process (SPG) and by the Senior Leaders Review Group (SLRG)—chaired by the Secretary of Defense and including major players representing the military and DOD leadership. The Chairman of the Joint Chiefs and his staff submit input to the PPBES through the Chairman's Program Recommendation, the Joint Planning Guidance (JPG) and the Chairman's Program Assessment. Combatant Commanders give input through their Integrated Priority Lists (IPLs), through conferences and lessons learned and through participation on the SLRG. The military services have input specifically in building the Program Objectives Memorandum or POM directly, and to the budget through their department secretaries and service of their senior leaders on the SLRG. The military services also conduct numerous special studies, e.g., by the Office of the Assistant Secretary for Program and Analysis (PA&E) or by the planning and programming offices within the military departments and services. The PPBES features myriad individual planning sub-systems and decision making sub-processes, involving a large number of participants, the sum of which defies complete description as a coherent system. Figure 1 shows the most prominent events and their timing in the period of one calendar year in the PPBES decision cycle but excludes budget execution that occurs after Congress and the President have approved appropriations for the DOD.

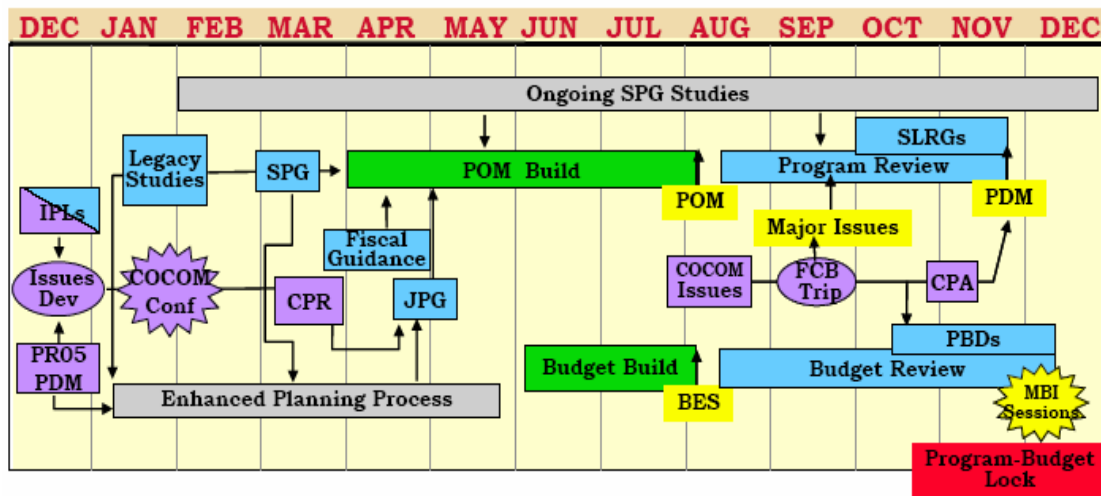


Figure 1. The PPBES Cycle (Daly, 2004, p. 4)

The purpose of the PPBES is to provide a systematic and structured approach for allocating resources in support of the national security strategy of the US. The ultimate goal of the entire PPBES process is to provide the military Commander-in-Chiefs with the best mix of forces, equipment and support attainable within resource constraints. Before delving into an analysis of the fit between the acquisition system and PPBES, it is necessary to understand more about how the changes initiated in 2001 and 2003 result in significant reforms authorized by Defense Secretary Donald Rumsfeld under the administration of President George W. Bush.

PPBES TRANSFORMATION

In 2003, Secretary of Defense Rumsfeld and staff transformed the PPBES decision cycle and also added an “E” to PPB to emphasize the importance of budget execution. The new PPBE system is part of the transformation of business affairs initiative led by the Secretary of Defense in the DOD, and it constitutes a significant initiative to improve and correct many of the evident problems that have weighed-down the functioning of the PPBS for decades. First, the change to the PPBES merged separate program and budget review processes into a single review cycle performed concurrently rather than sequentially. Second, it incorporated a budget process matched to the presidential electoral cycle, with major strategic changes slated for the second and fourth years of a Presidential term and minimal updating of plans and programs in the first and third years, given no major change in the threat. Third, it fixed timing of the process so that planning and budgeting were clearly derivative processes driven by the Quadrennial Defense Review and the National Military Strategy. Fourth, it changed the cycle for Office of the Secretary of Defense provision of top-level planning information to the military departments and services from an annual to a multi-year schedule with the combined program and budget review. The essence of the PPBES transformation is establishment of a four-year resource planning and decision cycle.

What transformation of the PPBES allows is that in a four-year Presidential administration, fundamental change is targeted for the second year of the cycle with the

first and third years changed only as threat environment demands increased modification. Given a stable environment, year two would result in the most fundamental analysis and change in plans, programs and budgets. Whether the defense environment is stable enough to support a four-year decision system remains to be seen. We now move to address this and other questions with respect to the consequences of recent PPBES transformation.

As noted, PPBES changes have created a combined two-year program and budget-review decision cycle (but not a biennial budget), with a complete review in year one, followed by limited incremental review in year two. This change in cycle from a full-program review and a full-budget review to a combined review is meant to reduce the inefficiencies of unnecessary re-making of program decisions; the program should drive the budget rather than the opposite. With the programming and budgeting cycles operating contemporaneously, decisions are intended to be arrived at more effectively, whether they are made in the off- or on-year. Changes made in each off-year cycle are intended to have quicker effect by compressing the programming and budgeting cycles while still preserving the decisions made in the on-year cycle through the off-year by limiting reconsideration of decisions to only the most necessary updates. In essence, decisions flow from the Quadrennial Defense Review and other studies; then, a structure is erected in the Strategic and Joint Planning Guidances that provides direction for the remaining years of a Presidential term. This structure remains in place unless dramatic changes in worldwide threat occur. Year-to-year changes in the program structure and budget then are made only to adjust to incremental fact-of-life changes. The inefficiencies of conducting comprehensive reviews every year (as intended in the previous PPBS process) are avoided, and the decision process itself supposedly moves more responsively to warfighting and preparation demands.

Also, this new process puts the Secretary of Defense into the decision environment at an earlier stage than in the old PPB process; it puts him “in the driver’s seat,” in the words of one budgeteer. Decisions in the new PPBES are intended to reach the Secretary while options are still open, and while important and large-scale changes still can be proposed—before the final decision has become a foregone conclusion at the military department level. When the Defense Secretary’s input came at the end of the stream of decisions, some changes that could have been made were pre-empted because they would have caused too much “breakage” in other programs.

DECISION SYSTEMS FOR ACQUISITION

The architecture of the PPBES interacts with two other major systems for acquisition planning, decision making and execution. These two systems are (1) the Joint Capabilities Integration and Development System (JCIDS) that is employed for determining warfighting requirements, and (2) the Defense Acquisition System (DAS), a system used for planning, decision and execution for research and development, test and evaluation and then procurement of capital assets.

These three systems -- PPBES, JCIDS and the DAS -- comprise the core of the DOD financial resource and acquisition decision making, allocation and execution process. Let us examine the JCIDS and the DAS more closely.

Joint Capabilities Integration and Development System (JCIDS)

The Joint Capabilities System (JCIDS) has replaced what used to be known as the Requirements Generation System (RGS). Through the JCIDS, defense decision makers apply the prevailing precepts of national and defense strategy to create joint fighting forces capable of performing the military operations required by the nature of the threat faced by US armed forces—something that is constantly changing. The JCIDS process is shown in Figure 2.

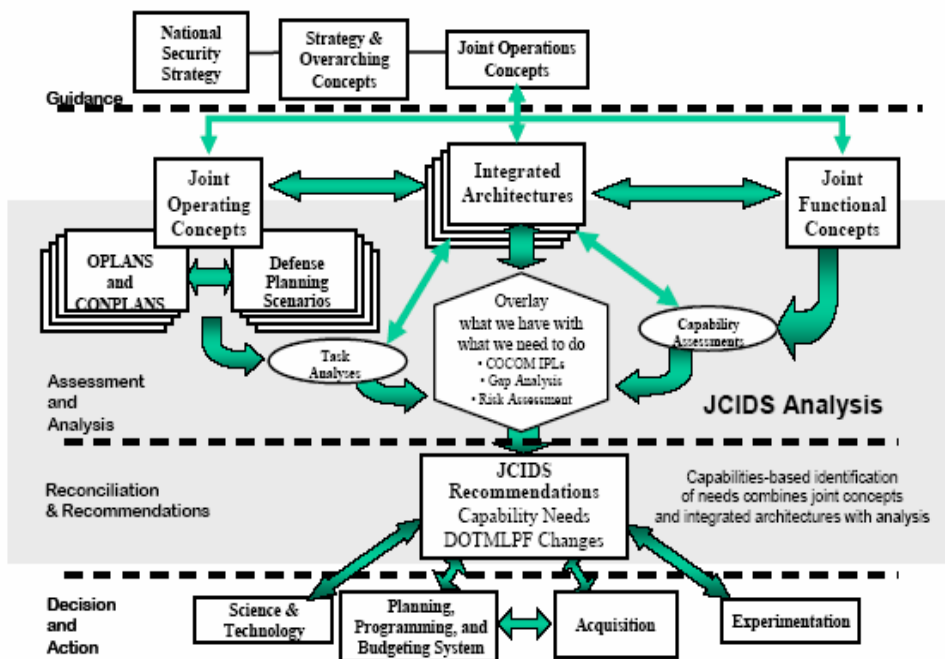


Figure 2: The JCIDS Process (From Bowman, 2003)

The JCIDS was developed to identify joint warfighting requirements and to emphasize a top-down orientation to decision making. Instead of the former process—in which military departments and services determined mission requirements and identified joint needs to increase program funding attractiveness as they prepared and routed their acquisition program proposals up the chain of command—in JCIDS, the Chairman of the Joint Chiefs of Staff (CJCS) first determines if the required capability exists, then pushes it down to the resource sponsor in the military departments and services for acquisition. If jointness in acquisition and procurement is required, then the program is essentially “born joint.” In addition, the term “capabilities-based” is a recent refinement of guidance for the entire purpose of the acquisition decision system. In the JCIDS, gaps in warfighting capability, either current or those programmed in the Future Years Defense Plan (FYDP), are identified—and any risks associated with gaps are quantified. JCIDS decision makers then determine future capabilities to address existing gaps. In doing so, it is important that the decision makers be specific enough about a new capability to include key attributes with appropriate measures of effectiveness, supportability, time,

distance, effect (including scale) and obstacles to be overcome. Additionally, the capability needs be general enough not to prejudice decisions in favor of a particular means of implementation.

The Defense Acquisition System

Whereas top level DOD decision makers use the JCIDS to identify capability requirements as current and future threat scenarios emerge, the Defense Acquisition System (DAS) evaluates JCIDS-defined capability gaps, and initiates and executes acquisition and procurement programs to field systems to bridge these gaps. In situations where the technology exists to fill a requirement, the DAS exists to acquire a tailored and capable product quickly and in a cost-efficient manner. When new technology is required to fill a capability gap, it is through the DAS that the DOD develops, tests, demonstrates and deploys the new technology in a timely manner and at a fair and reasonable price. In either case, the DAS is forward-looking and tries to ensure that systems fielded support not only today's fighting forces, but also those of the future.

The DAS exists in a highly dynamic and political environment. Since defense acquisition in aggregate involves billions of dollars each year, the process, participants and individual programs are linked to powerful stakeholders. These include the executive branch of the federal government with the DOD acting as its agent, the legislative branch where the Senate and House Armed Services and Appropriations committees decide what assets will be acquired and funded, private industry where large defense contractors compete for business, market share, and product continuity, in which the subcontractors and small businesses seek a piece of the business, and state and local governments where the defense industrial base is located, where the workforce lives, where dollars are spent and taxes are collected. These stakeholders are both supportive in seeking dollars for defense acquisition and rivals for business. This is true not only in the private sector, but between the military departments and the DOD, the military departments and each other, and within the military departments as potential programs compete for approval and budget.

Since the DOD determines DAS policies and procedures, negotiates each annual budget, makes decisions regarding acquisition programs and the awarding of lucrative contracts to private industry, each major player in the process with authority may attempt to exert influence in the DAS, be it for efficiency reasons, career or organizational ambition or relative to other sources of motivation. Ultimately, Congress holds the power of the purse and must balance defense and non-defense spending. Nonetheless, all these stakeholders compete for some sort of corporate, organizational and professional gain. DOD acquisition is performed in the highly competitive, but only partially transparent, environment of the nation's capitol.

To do their jobs well, those who manage projects within the DOD must understand the political, social and economic aspects and consequences of the defense acquisition process. From the lowest echelons of program management to the top, the Undersecretary of Defense for Acquisition, Technology and Logistics (USD, AT&L)), all DOD participants must be both knowledgeable and sensitive to the competing forces and attempt to craft each program and project so that, ultimately, warfighters are provided the best assets to support national security policy. The key stages or milestone points of the DAS process move from requirements setting and concept design to determine weapon

system needs by the end users -- the fighting forces --through technology and systems development to production (procurement) and deployment to warfighters, and, finally, to post-deployment operations and support.

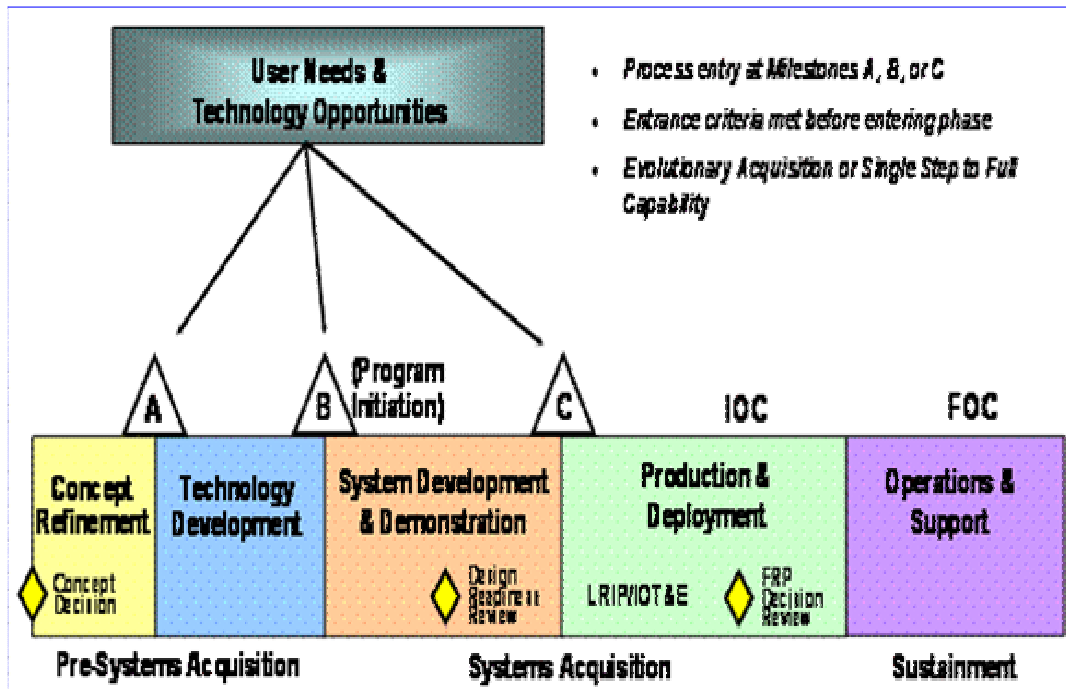


Figure 3. The Defense Acquisition System: Major Phases/Milestones
From DOD, 2003, DODD

According to the DOD Directive 5000.1 (12 May 2003), Defense Acquisition is, “the management process by which the Department of Defense provides effective, affordable and timely systems to users” (DODD 5000.1, 2003, p. 2). Decision makers use JCIDS to identify capability requirements as the current and future threat dictates. When new technology is required to fill a capability gap, it is through the DAS that DOD develops, tests, demonstrates and deploys the new technology, “in a timely manner, and at a fair and reasonable price” 5000.1, 2003, p. 2). Just as the PPB system is undergoing transformational change, so is the defense acquisition system.

ACQUISITION SYSTEM TRANSFORMATION

In late 2002, the Deputy Secretary of Defense Paul Wolfowitz canceled the existing set of DOD 5000 series acquisition regulations. In his memorandum, he explained that the acquisition system as defined by these regulations was not flexible, creative or efficient enough to meet the needs of the DOD. Therefore, he ordered a revision of the acquisition process and a reissue of the directives to, “rapidly deliver affordable, sustainable capability to the warfighter that meets the warfighter’s needs.” (Wolfowitz, 2003, p. 1).

The DAS process breaks the project lifecycle into three general stages: presystems acquisition, systems acquisition, and sustainment. These three stages are further divided into five distinct sub-phases: Concept Refinement (CR), Technology Development (TD), System Development and Demonstration (SDD), Production and Deployment (P&D), and Operations and Support (O&S), as shown in Figure 3. These processes guide a program from initial exploration of required capability (as detailed in an Initial Capabilities Document (ICD)), to the production and deployment of a technologically mature weapons system, including required operational support.

Additionally, each program has a distinct chain of command through which decisions are made. Depending on the size and visibility of a particular program, there may be up to four levels in the chain of command before the ultimate decision is made by the Milestone Decision Authority (MDA). Complex programs are sometimes divided into smaller elements and assigned groups of acquisition professionals across a range of functional disciplines. These groups are called Integrated Process Teams (IPTs). Some serve as executors of their respective functional program area. Others serve as advisory bodies.

The Program Manager is at the bottom of the chain of command. According to the new DODD 5000.1, the PM, a middle-range military or defense civilian (O-5/O-6) is the individual with responsibility for and authority to accomplish program objectives for development, production, and sustainment to include “credible cost, schedule, and performance reporting to the MDA” (DAU 2003, p. 2). The PM reports to a Program Executive Officer (PEO). The PEO, a one- or two-star flag officer or senior executive service (SES) equivalent, is responsible for a group of like programs within each military department and service. PEOs report to Component Acquisition Executives (CAEs). Each service has one CAE responsible for the management direction of their respective procurement system. The Secretary of the Navy has delegated this position to the Assistant Secretary of the Navy for Research Development and Acquisition (ASN (RDA)). Finally, the CAE reports to the Defense Acquisition Executive (DAE). The DOD has only one DAE, the Under-Secretary of Defense for Acquisition, Technology and Logistics (USD (AT&L)). The USD (AT&L) is authorized under title 10, US Code to be, “the Principal Staff Assistant and advisor to the Secretary and Deputy Secretary of Defense for all matters relating to the DOD acquisition system; research and development; advanced technology; developmental test and evaluation; production; logistics; etc.” Also, as the DAE, he presides over the military department and service secretaries and, “is responsible for establishing acquisition policies and procedures for the Department. He also chairs the Defense Acquisition Board (DAB), and makes milestone decisions on Acquisition Category (ACAT) ID programs” (DAU 2003, p. 31). Programs are categorized by whether they are a DOD-wide asset or an asset for one service and by estimated dollars to be expended, with different rules applying to different-sized programs.

The Milestone Decision Authority (MDA), i.e., overall responsibility for all programs, may be delegated to anyone in this chain of command. The MDA for many small programs is the PM, whereas MDA for the large procurement programs and the most politically sensitive programs is usually held at the top by the USD (AT&L).

In the DAS decision process, program movement through the three DAS stages is strictly controlled through a series of six decision points and program reviews. The first

stage of the DAS is pre-systems acquisition. Pre-systems acquisition activities are focused on refining material solutions to needs as defined in a published Initial Capabilities Document (ICD). This stage is split into two phases: Concept Resolution and Technological Development. As the first phase concludes, and the second major decision point (Milestone A) is reached when the MDA approves both the preferred solution supported by the AoA and the TDS.

Once Milestone A is achieved, the Technology Development stage begins. With the exception of some high-dollar shipbuilding programs, an official acquisition program has still not considered to have been initiated at this point. Therefore, funding is restricted to work that is done in this phase, the intent of which is to, "reduce technology risk and to determine the appropriate set of technologies to be integrated into a full system" (DAU 2003, p. 6). This stage is iterative in that the technologies to be refined are continuously developed and processed through close interaction between the S&T community, the users and the developers. As such, the TDS is constantly reviewed and updated with each incremental effort as the technology demonstrations gradually show the proposed solution to be, "affordable, militarily useful, and based on mature technology" (DAU 2003, p. 6).

The TD phase ends when either the MDA decides to terminate the effort, or the third major decision point (Milestone B) is achieved. To be granted Milestone B approval, the second major JCIDS analysis (the Capability Development Document (CDD)) must be approved through the JCIDS process, and the MDA must approve both the acquisition strategy and the acquisition program baseline. The MDA must be satisfied that an affordable increment of militarily useful capability has been identified, the technology for that increment has been demonstrated in a relevant environment, and development and production of a system can be achieved within a relatively acceptable timeframe (normally less than five years). With an ICD providing the context, and an approved CDD describing specific program requirements, Milestone B approval is achieved, signaling the availability of sufficient technology maturity. When funding is approved by Congress and apportioned from the DOD -- critical steps -- then a formal acquisition program is born and moves forward in the DAS process.

If a program is to be executed in increments or spirals through an evolutionary acquisition process, each increment will be its own program from the Development and Demonstration phase forward. Each increment or spiral must have its own Milestone B and C approval. Additionally, increment-specific KPPs must be delineated in the CDD for each increment or spiral. Finally, before beginning this phase, and with the current increment TDS as a basis, the program manager must build and the MDA must approve an acquisition strategy for follow-on increments. Solutions to capability needs can come from a variety of sources, including COTS as well as previously discovered mature technologies that heretofore had no obvious DOD application. As such, not all acquisition efforts need start in CR. Some programs can enter the DAS at later stages; the System Development and Demonstration (SDD) stage marks the first point at which a more mature technology with an approved ICD and CDD may enter the DAS for further refinement without undergoing the scrutiny of CR or TD.

System Development and Demonstration (SDD) has two main purposes: system integration and system demonstration. Systems integration involves integration of both mature technologies and component subsystems into one complete design that meets the

stated requirement. Additionally, at this point, design detail should be achieved as well as tradeoffs considered between risk and technology maturity. Risk is defined as how much less capability is allowable while still providing the warfighter with a system that meets the intent of the ICD. Thus, decisions must be made to ascertain what is necessary and what is achievable based on the maturity of the technologies involved. During this stage, such risk decisions must be objectively determined by the program decision makers to limit program costs and the overall time required for systems development.

Systems integration is considered complete when a working prototype has been designed, tested, and documented as functional in an environment appropriate to that in which the user will employ it. Another decision, the design readiness review (DRR), must be successfully negotiated to move to the next part of SDD: systems development. The DRR is a mid-phase assessment of the design to document the complete system in terms of the percentage of drawings completed; planned corrective actions to hardware/software deficiencies; adequate development testing; an assessment of environment, safety and occupational health risks; a completed failure modes and effects analysis; the identification of key system characteristics and critical manufacturing processes; an estimate of system reliability based on demonstrated reliability rates; etc. (DAU 2003, p. 8) This phase is complete when both the whole system is verified as useful and capable, and the appropriate industrial capability exists to allow the program to move on to the next phase, production and deployment (P&D). Additionally, to gain Milestone C approval, the MDA needs to be satisfied that the program is ready to be committed to production. Otherwise, the MDA must terminate the program. Finally, the CPD must be obtained through the JCIDS process. This step declares that the performance required to exit the SDD phase and the forecasted production capability required to successfully accomplish the P&D phase are in place.

The objective of the fourth phase of acquisition, P&D, is to establish the full operational capability of the program, the ability to produce it in an optimal manner and to ensure that the final system meets original JCIDS intent as stated in the ICD. P&D begins with Milestone C approval that commits the DOD to production of the program. As such, it authorizes the program to enter either low-rate initial production (LRIP) for large programs that require this approach, full production for smaller programs that do not, or limited deployment and test for information systems that are software intensive.

There are two aspects to P&D. The first is operational test and evaluation (OT&E), including both initial (IOT&E) and follow-on (FOT&E). The test products used come from the production line (either LRIP or otherwise as applicable) and the Director, Operational Test and Evaluation (DOT&E) -- for those products requiring DOT&E oversight -- or the appropriate Operational Test Agency (OTA) determines the number of production-line units required for the testing regimen. The other aspect to the P&D phase is the ability of the established production line to handle the job of producing the required units at the rate required by contract. For large-scale production efforts, LRIP is required to ensure adequate and efficient manufacturing capability, to produce the minimum quantity necessary to provide units for IOT&E, to establish an initial production base for the system, and to permit an orderly increase in the production rate for the system (sufficient to lead to full-rate production upon successful testing) (DAU 2003, p. 9).

For programs requiring Low Rate Initial Production (LRIP), the final decision analysis, provided in the Full Rate Production (FRP) Decision Review, is required before

moving into full-speed production. This decision is made by the MDA after consideration of, “initial operational test and evaluation and live fire test and evaluation results (if applicable); demonstrated interoperability; supportability; cost and manpower estimates; and command, control, communications, computer, and intelligence supportability and certification (if applicable)” (DAU 2003, p. 56).

Finally, as the first production units are delivered to the user, the O&S phase begins. There is an overlap in the last two phases, and the PM must maintain oversight of both. O&S has two distinct parts: sustainment and disposal. Logistics and readiness matters at this point include maintenance, transportation, manpower, personnel, training, safety, survivability, etc.; these matters are a primary focus of the PM during sustainment. There are a number of post-design and production factors, such as the fleet logistics capability for the Navy for example, that must be addressed and tested during this phase before ascertaining the supportability of the program through established channels, be they military or commercial. Assets also are tested for efficiency to determine system ability to effectively provide support to the user in the most cost-efficient manner to achieve the lowest possible lifecycle cost and, to the extent possible, total ownership cost. Since many programs stay in the field for years, even decades, the PM must work with the user to document the O&S requirements to continuously evaluate the lifecycle costs, making improvements or service life extensions as necessary in attempt to control and contain total ownership costs.

The last phase of the DAS, disposal, is focused on meeting the costs associated with the end of the useful life of an asset. Throughout the design process, the PM must detail hazards that will affect end-of-life costs and must estimate and plan for eventual disposal costs. When the system finally reaches the end of its useful life, the PM is responsible for ushering it through the process of demilitarization and disposal, “in accordance with all legal and regulatory requirements and policy relating to safety (including explosives safety), security, and the environment” (DAU 2003, p. 11).

In summary, from the description above it is clear that the DAS is a highly complex, protracted decision process and management control system, which explains in part why it takes so long to acquire new defense assets. Could this process be reduced in terms of complexity, number of decision steps, players, and decision cycle-time through process reengineering? This is a question tangential to the thrust of this paper, but one that deserves further attention.

LINKAGES BETWEEN DECISION SYSTEMS

The JCIDS and the DAS systems are tied to each other a number of different ways. The primary goal of the DAS is to acquire capabilities for the DOD as directed through the Joint Chiefs. This relationship is carried out formally through the four formal JCIDS documents as well as through the many required DAS program reviews. They are also informally linked through the leaders of each process, some of whom have multiple roles to play in both.

As noted, the JCIDS documents include the Initial Capabilities Documents (ICDs), Capability Development Documents (CDDs), Capability Production Documents (CPDs) and the Capstone Requirements Documents (CRDs). These are directly and formally linked to DAS events. They are governed by policy and regulation and provide critical

information to DAS leaders with respect to critical program elements like performance criteria, program size, impacts and constraints. They also help specify the level of administrative oversight required.

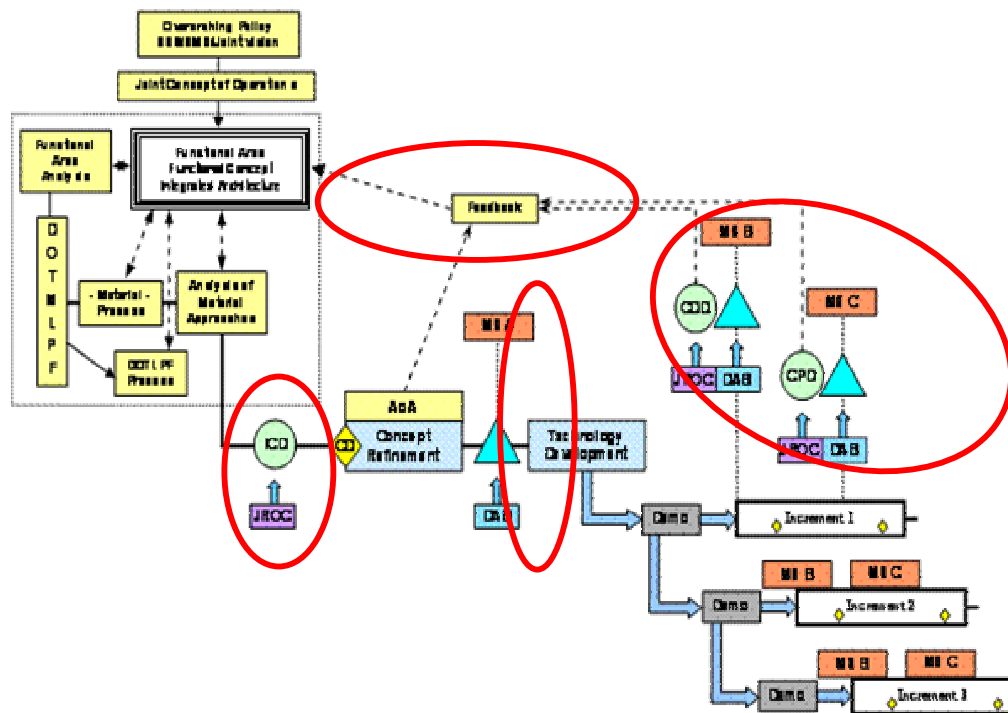


Figure 4: Source: (DODI 5000.2, 2003, p. 3). Note: Circles indicate linkage zones between the JCIDS and the DAS.

Generally, different JCIDS documents are required before each DAS milestone review; also, DAS players have to submit documents to JCIDS players for approval before a program can proceed past a milestone; for example, before milestone B approval, “the CDD must be received from the JCIDS leadership. For the JCIDS decision-makers to approve the CDD, they must receive data from the DAS representatives and review the progress of the program” (Fierstine, 2004, p. 55). This represents a formal relationship where documents are passed back and forth between players in these two systems, with one set providing data and the other approving it before the first may give milestone approval. Notice in the schematic how each of the milestone decision points (MS A, MS B, MS C) is accompanied by input from the JCIDS via JROC and DAS via DAB.

Additional critical formal links are created between the two systems when the same players hold important positions in both systems. First among these is the Secretary of Defense and his staff, the Deputy Secretary of Defense, the Undersecretary for Acquisition, Transportation and Logistics, and Assistant Secretaries including the DOD Comptroller and Chief Financial Officer, and the Secretary for Planning, Analysis and

Evaluation. The USD (AT&L) is central to this process as he chairs the DAB and Milestone Decision Authority for all the large procurement programs. He also has the authority to ask the JROC to review a program at any time. This gives him a powerful hand in both the JCIDS and DAS processes. The Deputy Secretary of Defense chairs the Senior Leaders Group (SLRG), in which all the important decisions are made which involve both JCIDS and DAS items. Various Under and Assistant Secretaries of Defense serve on the SLRG, the DAB, and Functional Capabilities Boards. Probably the most important of these is the Assistant Secretary of Defense for Networks and Information Integration (ASD (NII)) who serves on the DAB, the SLRG and the FCBs.

On the military side of the house, the most important link is probably the Vice Chairman of the Joint Chiefs (VCJCS) who functions as chairman of the Joint Requirements Oversight Council (JROC) and is Vice Chair of both the Senior Leader Review Group (SLRG) and the Defense Acquisition Board (DAB). Staff organizations within the Joint Staff apparatus also are important. These include the offices of J-8 (the Joint Potential Designator (JPD) Gatekeeper), J-7, (the executive agent for transformation), and J-6 (the agent who ensures IT/NSS interoperability and provides review, coordination and certification functions in support of the JCIDS and DAS) (CJCS, 2004, 3170.01D, p. B-4).

Within the military departments, the vice chiefs of each service sit on the JROC and the service secretaries sit on both the DAB and the SLRG. It should be remembered that individual military personnel form the lion's share of representation on oversight and analysis bodies related to both processes. Also, the Services are the sponsors for every program and research effort, and they staff the program offices. Furthermore, the Services run the JCIDS analysis processes.

Since the JCIDS and the DAS are event-driven systems, they follow similar patterns and are linked through their programs and documentation. In contrast, the PPBES is a calendar-driven sequence of events. JCIDS or DAS events may or may not fit neatly in the POM/budget cycle. DAS events may or may not fit neatly into the off-year or on-year cycle. For example, when a major program gets a "go" signal in an off-year, what this does to the basic concept of off-year is yet to be determined. It hardly seems like the program will be told to wait until next year, but if resources then are committed, does this mean that decision space is pre-empted from the following on-year? Does this mean the on-year becomes an off-year? What if the "go" signal occurs in the first year of a Presidential regime? Will this mean a wait? If it is a major capacity-enhancing acquisition, what will this mean for the QDR scheduled to arrive some 12 months later? Will strategy and doctrinal changes be pre-empted? What if a large program appears about to fail a major milestone, but it has been counted on as a part of a Presidential legacy in the fourth year of a Presidency: will the program be "forced" and the assumption made that it will get well (that its difficulty will be corrected) in the off-years (e.g., the USMC V-22 Osprey aircraft)? These decisions have consequences for each other, just as the battlefield concept in the late 1990s when the decision about armoring Humvees was made; doctrine appears to have envisioned a front-line/rear-area split with little need to armor Humvees because only a few would be used in or near the front line. Iraq did not turn out that way, hence the scramble to uparmor Humvees.

The point is that any procurement effort can span multiple annual PPBES cycles, be under the influence of a series of layered PPBES decisions and feed data back into any

number of current and future PPBES phases. The link to the PPBES formally comes from the Strategic Planning Council (SPC) which develops the Strategic Planning Guidance (SPG). The SPC is led by SECDEF and made up of the Senior Leaders Review Group (SLRG) and the Combatant Commanders; it includes virtually all of the senior leadership in the DOD, civilian and military, including 19 four-star billets, the service secretaries and various OSD-level representatives. This group produces the Strategic Planning Guidance, although it probably would be most correct to say that it is produced for SECDEF, belongs to him, and that his views are dominant in the end product. The SPG sets the scene for the POM-budget process, feeding directly into the POM. It identifies and sets up DOD-wide trade-offs and identifies joint needs, excesses and gaps; it focuses on such things as threat changes, war-plans analysis, new concepts, and lessons learned.

For example, one lesson learned might be that US forces may have to be prepared to fight in both traditional and non-traditional battlefields (e.g., Iraq); this lesson has significant consequences for both doctrine and attributes of warfighting platforms. If Humvees are going to be at risk of taking direct and high-powered fire wherever they go (in a front-line is everywhere GWOT scenario), then their armor needs change. The POM process is also informed by issues surfaced by the Combatant Commanders (COCOMS) routed through an extended planning process to the joint staff. The result of this input of information is the Chairman's Program Recommendation (CPR) and the Joint Planning Guidance (JPG), which help integrate joint capabilities into the POM process. The link between the DAS and PPBES is that the JCIDS's capabilities analysis model is used to examine current and forecasted capability needs.

At the service level, a number of other interactions exist. In the Department of the Navy, for example, during the POM and budget build/review processes, the Navy requirements officers and analysts under N7 and the Financial Managers and analysts under N8 independently conduct their own campaigns, scenario and program analyses. In doing so, they use the same scenarios, simulations and models as are used in the JCIDS by OSD, the joint staff and the rest of the MILDEPS. Additionally, all the data regarding past, current and future program cost comes from the program offices who manage the Services' acquisition programs.

At the most basic level, the PPBE system and the Defense Acquisition system are linked through program cost data. Program offices build OSIPs (Operational Safety Improvement Programs); these are used to create the budget line items that detail program cost data and to feed that data through their budget offices for their programs (BFMs) to the Navy Budget office (FMB); here, it is used during program-cost analysis throughout the year. When the Navy Budget Office asks questions about a program or recommends changes, those are answered or completed based on the data provided in these OSIPs. These questions may happen during the budgeting phase, when marks and reclaims (appeals of budget cuts) are made, or during budget execution. The analysts in N7, who represent the warfare requirements community, and the analysts in N8, who are the budgeters and linked to the PPBE, closely monitor the acquisition programs. In the current year, if a program is under-executing, then the program and budget analysts will make adjustments as necessary to ensure that money is diverted to those programs that will spend it by the end of the appropriation period.

The result is that the warfighting-needs system, the acquisition system (DAS), and the PPBE system focus around various points of integration and articulation -- from an

assessment of the threat in the SPG to a design for joint capabilities in the JPG through the POM building process and into the annual budget preparation and review processes. While formal documents provide for co-ordination, some co-ordination happens by forcing decisions on different aspects of defense needs through the same sets of players. Formal documents are required and reviewed by these players before decisions are made initially and at subsequent important check points, be they milestones, POM, or budget decisions. Additionally, staffs of analysts in different organizational locales have responsibilities for data production and review in program creation, implementation, and execution. They tend to be focused on a single-issue -- on, for example, the best weapon system, or the most weapon systems for the money available this year. These players assume coordination and integration is done at levels above them or prior to program starts, or whenever the POM is built and reviewed, or whenever the threat changes or when new capabilities are needed or old capabilities may be foregone, or even when a strike in a tin mine in South America may imperil the pace of a program.

There is no doubt but that this is a complicated arrangement. Perhaps the single most confounding factor in these equations is time. Weapon systems take time to develop and build. The V-22 for the Marine Corps has been in development of one sort or another since the late 1980s, the Navy LPD-17 since 1998. The engineering and deploying of the surveillance drone in Afghanistan in 18 months is the exception to the rule. Most weapons acquisition programs take years to develop. The procurement effort can span multiple annual PPBES cycles, be under the influence of a series of layered PPBES decisions and feed data back into a number of current and future PPBES phases.

What this means is that when complicated programs (all weapons programs are complicated) are conceived and developed, they move through the multi-phase PPBES process. What this means in practice is that they also are reviewed by different individuals. Turnover in personnel in the DOD is high. This happens by law and practice for military leaders; the effect is that turnover happens every two to three years. This level of turnover is just as true on the civilian side. Thus, the Marine V-22 program has seen six different Secretaries of Defense. It was begun under Secretary of Defense Caspar Weinberger and continued under Secretaries Dick Cheney, Les Aspin, William Perry, William Cohen, and Donald Rumsfeld. In fact, the average tenure of senior leadership in the DOD is 1.7 years. Thus, co-ordination by position is riskier than it seems. If the distance between milestones A and B or B and C is more than two years, it is highly likely that most of the players in the SLRG will have changed. Even when they are the same people, they may be sitting in new positions and have changed the interests they represent. This is true for both civilian and military leaders. The result is that one should not count on the effectiveness of coordination by position. This leaves coordination by document as the fall-back position. Fiscal climate is also a complicating factor. Weapons systems that take years to develop and field will go thru varying fiscal climates: for example, the Marine Corps V-22 aircraft started in a rich procurement environment in the mid-1980s and was kept alive in the procurement holiday in the 1990s. Change also comes from change in the threat situation or battlefield doctrine: Secretary Rumsfeld's goal of transforming the Army to a lighter, agile, and more lethal organization doomed the Crusader artillery system. Another aspect of this happens when a service can not decide on the capabilities it wants and, thus, decides to maximize all capabilities; this is roughly what happened to Navy air plans in the early 1990s. The result was a years-long

delay for plans for new aircraft. Thus, the passage of time means that people, resources, and doctrine change. These are all threats to the orderly integration of the warfighting requirements, DAS and PPBES.

ASSESSING PROBLEMS WITH PPBES AND DAS ALIGNMENT

In the research project that produced this paper, interviews were conducted in the Pentagon environment on the topic of the degree of fit between PPBES and Acquisition decision systems. A number of current and past DOD process players in and around the Beltway were interviewed, including some now working in the private sector doing business with the DOD. Those interviewed in this project included representatives of Navy contractors, representatives from Navy air and sea system commands, Washington-based Navy resource management officials, OSD acquisition officials and active and retired JCS officials. Interviews were supplemented by discussions and briefings by high-level military officials in the Office of Program Analysis and Evaluation (PA&E) and the Joint Chiefs' staff (J-8).

We make no claim that our interview findings are definitive, but they provide insight into potential (perceived as real) dysfunctions within and between the PPBES and DAS analysis and decision processes. First, interviewees voiced concern with what we may term political issues: that all levels of the chain of command produce budget estimates that are above guidance, that the political sensitivity of large weapons programs affects requirements analysis and resource decisions, and that many decision makers use political clout to stave off directives from higher authority. Secondly, they criticized process: that a small number of people in the processes have disproportionate influence, that decisions are adversely affected by time compression—compounded by the lack of sufficient information—and that decisions are adversely impacted by the existence of too many approval levels in the acquisition chain of command. Thirdly, they focused on management and cost issues: that there is excessive duplication within and between the PPBES and DAS processes at all levels; that repetitious calculation of program costs in response to program and budget “drills” has an adverse effect on motivation, and that absence of clarity and consensus on costs causes significant difficulty in execution when budgeted funds are lower than required. Insofar as transformation is concerned, they reported that concurrent program and budget review in the new PPBES process has caused a significant increase in workload without a significant increase in benefits; they felt that transformation has not resolved the issue of communicating appropriate information to decision makers, and transformational change actually has slowed down many stages of the review and decision processes. They identified barriers to change to include: (a) emergent user needs not addressed adequately; (b) an over-reliance on correct verbiage in the OSIPs; (c) ill-defined and cumbersome blanket joint requirements, (d) inequitable distribution of common funds; (e) innovation hindered by the type of rigid control exercised over multiyear procurements constrains program flexibility; (f) with regard to program documentation, required process forms and “semantics” sometimes confuses intent; (g) budgetary constraints that drive changes in schedule and/or performance requirements that, in turn, have an unintended and negative impact on cost control.

Some interview respondents thought that, as budgets “moved up” the organizational hierarchy, there was a tendency to overestimate dollars to get the correct amount of warfighting capability; they believed this resulted in budgets exceeding guidance. Some respondents also felt that the large and expensive weapons systems which were built in several congressional districts or states were, perhaps, not subjected to as searching a warfare analysis scrutiny as they should have been. Respondents were concerned that, “...leadership can and does direct funding for programs deemed important, yet not supported by the analysis, given the info available to mid-level experts” (Fierstine, 2004, p. 99). They also said the lack of time and insufficient data or expertise impacted the quality of the budget decisions that were made. Respondents also worried about the degree of overlap and churn in the system. We speculate further on this below.

The military departments and services, the joint staff and OSD all do very similar analyses using the same data, models and simulations. All of this adds time and manpower effort to the process without necessarily reducing the necessity for guesswork and intuition. With respect to transformation, respondents felt that the PPBES was still a work in progress and had not produced a significant increase in benefits. We would observe the primary difficulty here is that the budgeters begin to work on the budget before a POM package has been completed. Further, in the budget and programming process, people routinely make decisions without a full grasp of all the facts and data. This was evident at all levels, from those in the program and requirements offices who had to route paperwork through people unfamiliar with their platform, to those in FMB making spot judgments due to time constraints. Finally, everyone interviewed complained about the length of time it takes to route paperwork and receive decisions.

Respondents also worried that emergent needs were not identified and integrated into the system soon enough—in effect, that joint needs had priority, and some programs were identified as joint and given priority when the likelihood of their being used in a joint environment was low. They also criticized the cumbersome procedures necessary to gain approval in the JCS review process. Some of those interviewed expressed the view that some program and requirements officer emergent needs for existing programs are not adequately addressed in the current system. Most argued that a big part of the current problem is the fact that the comptrollers are tied to the exact terminology in the OSIPs; therefore, anything not specifically delineated in the OSIPs has to endure the lengthy delay of a new program start-up. They all complained about the difficulty of navigating through the vague joint requirements required of all communication gear; these requirements force them to route all associated programs and upgrades through numerous joint wickets, even though many of the programs would not be used in such a manner as to require the joint standard. Finally, a few interviewees took issue with the equitable distribution of funds in programs that took money from everyone in order to provide commonality to all platforms. They claimed that these funds were effectively an under-the-table system for certain systems to get their capability funded by everyone else.

Those interviewed explained that playing the game carefully is important. One interviewee had a list of the correct words to use when writing justification for dollars in different appropriations. Although a number of terms were virtually synonymous and would appear to mean approximately the same thing, a word that was wrong for the account could lead to a turndown or a do-over. For example, a careful analyst would use the terms “investigate or research” when writing justification for an RDT&E account, but

use the terms “analyze or assess” when doing the same activity for an APN justification. And an O&M request using these words would be looked upon unfavorably. The word “track” is probably as close as the O&M accounts get to in depth analysis.

Respondents were concerned with innovative adaptations to organizational stress. Here we point out how requirements change (downward) as programs fail to meet requirements; we will illustrate how Program Managers have found that if they can move their programs to a multi-year profile, they can fend off much of the churn that is driven by the annual budget process, particularly one that takes place in an era of scarce resources. Programmers have begun to increasingly use multi-year procurement strategies in an attempt to fence off programs from the annual churn that is inevitable. For example, breaking a MYP contract is a tremendously powerful argument to ward off a cut. The programmers also have used BTRs (Below Threshold Reprogramming) to their advantage to protect their accounts from raids during execution. This has the added benefit of cushioning them against the end of the year need to spend their money or lose it by designating a recipient for unspent funds and then possibly getting reciprocation from that recipient after the new budget comes along.

Reflecting on the above research, we observe that the most significant issue discovered is that an overwhelming amount of redundancy exists at all levels of the chain of command. This finding is supported by a study by the Center for Strategic and International Studies warning, “...that various military bureaucracies “unnecessarily overlap”, resulting in duplicative and, in some cases, overly large staffs that require wasteful coordination processes and impede necessary innovation” (Schmitt, 2004).

Our research also found that almost every Secretary, Under Secretary, Assistant Secretary and high ranking military officer with a required signature anywhere in these three decision-making processes has their own group of analysts to recheck, re-verify and recertify the data provided them from others (all of which are in or near the Pentagon). An example with regard to aviation would be how the individual programs, system command Budget Financial Managers, the offices within N7, N8 (under the Chief of Naval Operations) and the Office of the Secretary of Defense all have cost-analysis experts on staff looking at the same data, yet coming up with different conclusions. Although risk reduction is important, it seems that DOD analysis capability has grown (in aggregate) past the point of diminishing returns.

In our view the results of this research project call for efforts to reduce such redundancies through business process analysis and reengineering to eliminate duplication of effort, thereby increasing the quality of analysis provided to DOD decision makers, and to streamline decision making overall so that the time lapse between problem recognition and resolution is shortened (Hammer, 1990; Jones and Thompson, 1999: 47-106). Reengineering requires a careful, step by step analysis of work processes to assess the value of work performed at each step, eliminating duplication of effort, unnecessary work and excessive procedural complexity. In addition we would like to see improved integration and more systematic communication within and between the PPBES and acquisition decision processes. This in effect may be achieved only through improved alignment of the PPBES and DAS so that they work together rather than in tandem as separate systems. Realignment in essence required matching the two systems step by step in their analysis and decision stages to insure that timing and scheduling fit together so that mutual dependencies are addressed properly, with changes made when phases of

decision do not coordinate effectively. The overall goal of realignment is to match the processes of decision and to make the necessary changes in organizational structure to fit both the mission and the product demand functions necessary to meet market changes, e.g., changes in military mission and field asset requirements as is taking place presently in fighting the war on terrorism. When organizational mission forces changes in strategy and asset requirements, realignment typically is needed in complex organizations to match structure to strategy. This principle is well understood in the private sector but not so in government (Jones and Thompson, 1999: 127-178). In this regard, we would go so far to say that effective realignment of PPBES and the DAS may only be realized through merger of the two separate systems into a single decision process.

As a step toward achieving better linkage of the type, we suggest is necessary without radical decision system redesign and realignment we support the creation of a new information system to record and communicate real-time, highly detailed, accurate and useful programmatic cost, schedule, and performance information to decision makers (Fierstine: 2004:110). Included in this system should be highly detailed prioritization lists so that when decisions have to be made at subsequent levels of the budget an acquisition processes, those having to make decisions are better able to determine what should be implemented and what must be cut when necessary, and what should be bought when additional funding is available.

We suggest that such a system would increase decision efficiency and shorten decision time since top leadership officials would be able to make decisions based on readily available data without having to “drill” back down into the military/service budget and program offices to get data to satisfy their needs. Our study indicates a need for simplifying the entire acquisition document-and-review process through business process reengineering of the type suggested by Jones and Thompson (1999). We find that current operators are reducing the risk of making the wrong decision by increasing the time to make the decision. We also worry that currently there is no satisfactory way to address ideas or concerns that “bubble up” from the field that would add small increases in capability in the near-term. Currently such decisions are divided between existing programs that require attention and emergent ideas that require immediate funding and could be fielded quickly and at low cost. An example of a less urgent nature includes F-14 adaptation of the Air Force LANTERN pod. This upgrade was on the USAF air community’s “top-ten upgrade list” for years, but was only able to secure funding after a monumental demonstration of innovation. Had the acquisition decision pipeline been able to rapidly and cost-effectively address this need, then neither warfighters nor DAS staff would have had to contend with the protracted process of test, evaluation and demonstration. Since changes such as this are relatively small and tend to be focused on the short term versus the JCIDS horizon of decades, warfighter operators typically are unable to enter the funding debate without great difficulty. We would argue that this issue appears small but in fact is important to field users. This example and our overall observations suggest that a better system needs to be established to allow adequate prioritization and swift communication of field level needs up the chain of command and into and through both the PPBES and DAS processes.

We believe these ideas deserve further study. What may first be observed is that these recommendations call for reduction in staffs to eliminate redundancies, and also for the installation of a comprehensive real-time information system that would serve the same

information to all participants; additionally, we support the creation of a failure-analysis unit and system (Fierstine, 2004: 113). The risk here is that adding a new and complex information system and a new organizational entity to systems already rife with information systems and complexity is problematic. Additionally, the proposal to allow some systems to perform unique functions for specific military departments more quickly and in a more direct manner pushes against the joint and centralizing management trend currently in progress under transformation. Lastly, we are concerned about the risks inherent in implementing the changes we suggest that would be imposed on decision systems already undergoing substantial and continuous reform. Further changes will have to be made to systems that are already in the process of changing, and too much change at the same time is highly destabilizing to decision processes, especially during time of war, but we feel that this is a risk that must be taken.

CONCLUSIONS

Our findings relative to our primary research hypothesis on weaknesses in integration of the PPBES and Defense Acquisition System decision cycles indicate there are numerous points at which substantial and reinforcing linkages exist, and others where the systems operate separately. The question is to what degree should parts that are not integrated presently be better integrated in the future? We conclude that significant business process reengineering and organizational realignment are needed to improve the overall integration and the consequent effectiveness of DOD resource management and acquisition. We believe that improved integration and more systematic communication within and between the PPBES and acquisition decision processes is necessary. This in effect may be achieved only through a long-term commitment to process reengineering and initiatives to improve alignment and linkage within and between the PPBES and DAS so that they work together rather than in tandem as separate systems (Thompson and Jones, 1994; Jones and Thompson, 1999). We conclude that effective realignment probably can be realized only through merger of the two separate systems into a single decision process. Short of such sweeping reform, we recommend that a new and better information system be created with the expressed purpose of providing data extracted from both systems to DOD decision makers in as close to real time as possible. We suggest that an enterprise data management approach would be most appropriate to implement this improvement effectively. However, we caution that the costs of enterprise system development and implementation must be controlled carefully through rigorous system design examination and close management control when systems are proposed and developed by contractors. Poor system design and weak, ineffective oversight control over development of new management information system design, along with ineffective contract management continue to be bugaboos that plague DOD.

We find that the warfighting-needs definition system, the acquisition system (DAS), and the PPBE system focus on different tasks and their decision processes are not well integrated at many points -- from the assessment of the threat in the SPG to a design for joint capabilities in the JPG through the POM building process and into the annual budget preparation and review processes. Most, if not all, of the top leaders in the DOD hold multiple responsibilities in these systems. While formal processes intend to provide co-ordination, much co-ordination only happens by forcing decisions on different aspects of

defense needs through the same sets of players – and by going around much of the procedural steps and complexity of the individual decision systems. Excessively complicated documentation and overly formal procedural requirements are required to be incorporated and adhered to before decisions can be made even initially -- and at subsequent important check points, be they intermediate milestones, POM formulation, or budget preparation and decision making stages. Typically, staffs of analysts in different organizational locales in and around the Pentagon often have duplicative responsibilities for data production, analysis and review in the great number of steps moving from program creation through decision, implementation, and execution.

In addition to the complexity inherent in these systems, we conclude that the passage of time itself has important consequences for defense acquisition. Weapon systems take time to develop and build. The procurement effort can span multiple annual PPBE cycles, be under the influence of a series of layered PPBE decisions and feed data back into any number of current and future PPBE phases. The passage of time means that people, resources, and doctrine change. These are all threats to the orderly integration of warfighting requirements between the DAS and PPBES.

Operators in the process express concern and frustrations with the outcomes produced by the DAS and PPBES. These range from process duplications, repetitious calculations of program costs by different staffs, inflated budget estimates for programs and concerns about the efficiency of the concurrent program- and budget-review processes. Additional research is underway to evaluate the validity of these concerns. We suggest that one way to improve the acquisition process is to change the budget process to a multi-year format. We believe this could reduce end-of-year turbulence and churn and allow for greater rationalization of DOD decision-making systems. We reiterate that reengineering and realignment of the relationships between PPBES and the DAS is needed to achieve efficiency gains both within and between these systems.

With respect to PPBES transformation, measures to improve decision integration appear to have been achieved under the leadership of Secretary Rumsfeld in combining the programming phase or "endgame" -- the last part of the programming phase -- with budget review. This is where the Senior Leadership Review Group established by the Secretary reviews, approves and sometimes is forced to cut major acquisition programs. For example, in 2004 and 2005, the Defense Secretary and the SLRG had to consider both significant increases in acquisition and reductions forced by the tight fiscal constraints of POM 07 and the FY 2006 defense budget. The SLRG review, forced by the need to reduce spending projections due to the costs of the global war on terrorism (GWOT) and other budgetary costs (including those for personnel and personnel entitlements programs), resulted in some major acquisition program shifts and reductions. These include approval of the Navy decision to retire an aircraft carrier early (the Kennedy), cancellation of the C-130J buy and reductions in the size of buys in submarines and surface vessels for the Navy, modularization for the Army (the acquisition portion of this initiative), and cuts in the Joint Strike Fighter and the F/A-22 aircraft program for the Air Force.

In budget execution, the problems we have identified in this paper will persist as far as we can ascertain, e.g., where budgets drive programs. Some of this is inevitable -- as a result of congressional politics that produce changes in defense budgets and acquisition programs beyond the ability of the DOD to resist. When such reordering of priorities

from outside of DOD occurs, it causes significant disruption in both programs and budget – especially in preparation of future budgets and in the execution of current appropriations. It also forces changes in both the structure and content of the POM and QDR, causing the programming process to have to move in reverse to accommodate budget changes in a way that almost always causes discontinuity and drives up costs in acquisition program management and execution.

We conclude that under Secretary Rumsfeld a number of positive changes have been initiated to improve the manner in which the PPBES serves as a decision system for DOD to better integrate financial decisions with acquisition decision making. This is, in part, a result of Secretary Rumsfeld's demand for better information upon which to base decisions and his willingness to listen carefully and to question vigorously the data and options provided to him from his staff. In addition, it is a result of the changes made in the PPBES to better connect the process to the Secretary's procedural preferences. We also conclude that the acquisition system has been strengthened through program review in a number of ways including improvement in the role and performance of JCS staff (J8) where not just defense-wide acquisition programs (as was the case before transformation), but all DOD acquisition programs now are reviewed for jointness and feasibility. However, both the PPBES and DAS continue to reveal excessive procedural complexity that should be eliminated through reengineering, and the absence of sufficient integration that only may be addressed through realignment to better link these two systems.

A key problem for both PPBES and acquisition is the relationship between programming and budgeting. This may be understood by pointing out differences in perspectives between staff working in different parts of the two decision systems. For example, DOD comptroller staff who have the chief responsibility for budgeting within PPBES contend that budgeting always integrates acquisition programming. However, military department/service, OSD level programmers and DAS program managers do not share this view, contending that too many budget decisions drive the POM, rather than the other way around as the system is supposed to operate. This may have changed to some extent over the past four years with programming and budget analysis and decision coupling, but there is insufficient evidence available about resolution of this problem to convince us that there is demonstrable improvement in how DOD budgeting and acquisition systems operate with regard to integration and reduction of duplication of effort. What we have found is that DOD budgeting and acquisition systems have had to work harder to respond to changes in the threat and warfighting environment in the years since September 11, 2001 due to the demands of war. However, there is a difference between working harder and working smarter through the use of what may be termed a best practice approach. Our findings suggest strongly the need for reengineering and realignment of both the PPBES and acquisition decisions systems and linkages to reduce duplication of effort, to achieve better integration between systems, and to eliminate unnecessary procedural complexity in DOD resource decision making.

The major challenge facing the DOD in the period 2005-2010 and beyond is how to continue to modernize the fighting forces and increase the pace of business transformation while paying a high price in waging a war on terrorism. In essence, what the DOD must fund and support in the short-term must be traded-off against longer-term investment intended to improve both business-management efficiency and force

readiness. Given this dilemma, it is clear that DOD leadership faces critical resource management challenges in the next decade. In this cost constrained environment it is essential for DOD to attempt to reengineer and realign separate budgeting/financial management and asset acquisition systems to improve integration of overall defense management decision making.

NOTE

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