



Defense Acquisitions: How DOD Acquires Weapon Systems and Recent Efforts to Reform the Process

Moshe Schwartz
Specialist in Defense Acquisition

July 10, 2009

Congressional Research Service

7-5700

www.crs.gov

RL34026

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 10 JUL 2009		2. REPORT TYPE		3. DATES COVERED 00-00-2009 to 00-00-2009	
4. TITLE AND SUBTITLE Defense Acquisitions: How DOD Acquires Weapon Systems and Recent Efforts to Reform the Process				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Congressional Research Service, Library of Congress, 101 Independence Ave., SE, Washington, DC, 20540-7500				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 29	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Summary

Department of Defense (DOD) efforts to acquire goods and services are often complex and controversial. These efforts are referred to as defense acquisitions. The structure DOD utilizes to plan, execute, and oversee those activities is an intricate and multi-variate “system of systems” composed of the requirements, resource allocation, and acquisition systems. This system of systems has evolved over time, its foundation being the report published by the Packard Commission in 1986, many of whose recommendations became part of the Goldwater-Nichols Department of Defense Reorganization Act of 1986. This evolution continued, as the requirements system changed from a threat-based to a capabilities-based system; the resource allocation system added execution reviews and concurrent program/budget reviews; and the acquisition system became a flexible, tailored process.

The complexity of this system of systems combined with the magnitude of personnel, activities and funding involved in its operation can result in problems, including inefficient operations, fraud/waste/abuse, and inadequate implementation or enforcement of the laws and regulations that govern it. Both DOD and Congress have worked to address these types of problems and accompanying issues over the years.

In Fiscal Year (FY) 2009, a number of major efforts were undertaken to reform the acquisition process. DOD issued an updated and revised DOD Instruction 5000.2 (which governs the process for acquiring systems) and issued an updated and revised Instruction, *Joint Capabilities Integration and Development System* (which governs the process for deciding what capabilities new weapon systems require). In addition, Secretary Gates stated his intent to significantly alter the way weapon systems are acquired, including canceling or curtailing the acquisition of a number of current programs. For its part, the 110th Congress passed the FY2009 Duncan Hunter National Defense Authorization Act (S. 3001/P.L. 110-417) and the 111th Congress passed the Weapon Systems Acquisition Reform Act of 2009 (S. 454/P.L. 111-23), both of which made changes to the acquisition process. Key provisions in P.L. 111-23 include the appointment of a Director of Cost Assessment and Program Evaluation, a Director of Developmental Test and Evaluation, and a Director of Systems Engineering; a requirement that combatant commanders have more influence in the requirements generation process; changes to the Nunn-McCurdy Act, including rescinding the most recent Milestone approval for any program experiencing critical cost growth; and a requirement that DOD revise guidelines and tighten regulations governing conflicts of interest by contractors working on MDAPs.

Contents

Introduction	1
Background	1
Statutory and Regulatory Foundation	2
The Organizational Structure.....	3
Joint Capabilities Integration and Development System (JCIDS).....	3
Planning, Programming, Budgeting and Execution System (PPBE)	4
Defense Acquisition System (DAS).....	7
Acquisition Categories (ACATs)	11
Acquisition Reform.....	13
Recent Analysis of Defense Acquisitions.....	13
Major Reports Since 2000	14
Periodic GAO Reports	15
Recent DOD Reform Efforts	16
Congressional Reform Efforts	17
FY2007–2009 Legislative Activity.....	18
Weapon Systems Acquisition Reform Act of 2009 (S. 454/P.L. 111-23)	18
FY2009 Duncan Hunter National Defense Authorization Act (S. 3001/P.L. 110-417).....	19
FY2008 National Defense Authorization Act (H.R. 4986/P.L. 110-181)	20
FY2007 John Warner National Defense Authorization Act (H.R. 5122/P.L. 109-364).....	20

Figures

Figure 1. DOD’s Defense Acquisition Structure.....	3
Figure 2. PPBE Concurrent Program/Budget Review	5
Figure 3. PPBE Process Overview On-Year.....	6
Figure 4. PPBE Process Overview Off-Year	6
Figure 5. Defense Acquisition Milestones.....	8
Figure 6. Defense Acquisition Milestones: Materiel Solution and the Pre-Milestone Phase	8
Figure 7. Defense Acquisition Milestones: Milestone A and the Technology Development Phase	9
Figure 8. Defense Acquisition Milestones: Milestone B and the Engineering and Manufacturing Development Phase.....	10
Figure 9. Defense Acquisition Milestones: Milestone C and the Production and Deployment Phase	11

Tables

Table 1. Description of Acquisition Categories	12
--	----

Appendixes

Appendix A. The Acquisition, Technology, and Logistics System	22
Appendix B. Evolutionary History of the Defense Acquisition Structure Prior to Goldwater-Nichols	23

Contacts

Author Contact Information	25
----------------------------------	----

Introduction

The Department of Defense (DOD) purchases goods and services from contractors to support military operations. Any purchase of a good or service by DOD is defined as a *procurement*. In contrast, the term *defense acquisition* is a broader term that applies to more than just the purchase, or procurement, of an item or service; the acquisition process encompasses the design, engineering, construction, testing, deployment, sustainment, and disposal of weapons or related items purchased from a contractor.¹ DOD's acquisition system is highly complex (see **Appendix A**), and does not always produce systems that meet anticipated cost or performance expectations.

Congress has been concerned with the structure of the defense acquisition system for many years. For example, the House Armed Services Committee's report of the FY2007 defense authorization bill stated

Simply put, the Department of Defense (DOD) acquisition process is broken. 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 rising costs and lengthening schedules of major defense acquisition programs lead to more expensive platforms fielded in fewer numbers. The committee's concerns extend to all three key components of the Acquisition process including requirements generation, acquisition and contracting, and financial management.²

Over the decades, congressional oversight has focused on many aspects of the acquisition process, from "micro-level" practices, such as characteristics of a particular contract, to "macro-level" practices, such as management and execution of Major Defense Acquisition Programs (MDAPs).³ In response to these concerns, Congress has legislated many changes in an effort to improve the defense acquisition structure and its practices.⁴

This report will outline DOD's defense acquisition structure, discuss recent major reports addressing defense acquisition, and consider recent DOD efforts to improve how the department acquires weapon systems. This report also includes a description of recent congressional efforts to reform DOD's acquisition process.

Background

Since the early days of the republic, the United States government has relied on contractors to provide goods and services to the military. During the Revolutionary War, the Continental Army

¹ *Introduction to Defense Acquisition Management*, 8th ed. (Fort Belvoir, VA: Defense Acquisition University Press, December, 2008, p. 1.

² H.Rept. 109-452. *Report of the Committee on Armed Services, House of Representatives on H.R. 5122*. May 5, 2006, p. 350.

³ MDAPs are the Department's most expensive acquisition programs. MDAPs are statutorily defined in 10 U.S.C. 2430 as DOD acquisition programs whose value based on FY1990 constant dollars exceeds \$300 million of Research, Development, Test and Evaluation funding (approximately \$442 million in FY2009 dollars), \$1.8 billion of Procurement funding (approximately \$2.578 billion in FY2009 dollars), or are designated MDAPs by the Under Secretary of Defense for Acquisition, Technology, and Logistics.

⁴ Congress's authority to reorganize the defense acquisition process stems primarily from Article I, Section 8 of the Constitution, which vests the legislature with the power to "To raise and support Armies... provide and maintain a Navy... [and] make Rules for the Government and Regulation of the land and naval Forces."

relied on contractors to provide such goods and services as transportation and engineering services, clothing, weapons, and labor.⁵ In 1775, to manage government contracting, the Continental Congress established a procurement system and appointed both a commissary general and a quartermaster general to buy goods and services for the Continental Army.⁶ As the needs of the U.S. military have changed significantly over the last 225 years, DOD's procurement practices have evolved in an effort to meet the needs of the military.⁷

Today, the United States fields arguably the most technologically superior military force in the world. However, fielding such a force has been difficult and costly, as seen by the numerous reports of cost and schedule overruns, or performance failures, that have plagued many programs in recent years. Cost and schedule overruns persist. Numerous efforts to reform the acquisition system have been undertaken, such as the many changes made to DOD acquisition policy, recommendations made for improving acquisitions by various commissions, think tanks, and government organizations, and legislation passed by Congress.

Statutory and Regulatory Foundation

Title 10 of the United States Code governs the organization, structure, and operation of the Armed Forces of the United States. Chapters 144 and 144a specifically address MDAPs and Major Automated Information Systems (MAIS). General procurement provisions, many of which apply to MDAPs and MAISs, are spread throughout the title, including assignment of responsibilities, establishment of acquisition procedures, and requirements for reporting to Congress. The annual National Defense Authorization Acts is one of the principle mechanism by which Congress modifies the defense acquisition structure, which is also set forth in Title 10.

DOD procurement activities are governed by three sets of federal government regulations. The first set of regulations, which apply to the entire federal government (including DOD unless stated otherwise), are found in the Federal Acquisition Regulation (FAR); the second set of regulations apply only to DOD and are found in the Defense Federal Acquisition Regulation Supplement (DFARS); the third set of regulations apply only to individual DOD Components and are found in component-unique FAR Supplements.⁸ Procurement actions in DOD must adhere to the various regulations, including those executed as part of DOD's acquisition programs, and Program Managers must take the regulations into account during the planning and execution of their programs.

⁵ Deborah C. Kidwell, "Public War, Private Fight? The United States and Private Military Companies," *Global War on Terrorism Occasional Paper 12*, Combat Studies Institute Press, Fort Leavenworth, Kansas, 2005, p. 9. See also James F. Nagle, *History of Government Contracting*, 2nd ed. (Washington, D.C.: The George Washington University Law School, 1999), pp. 16-19.

⁶ *History of Government Contracting*, et al., p. 23.

⁷ For a discussion on the evolution of the defense acquisition structure, see .

⁸ The Army, Air Force, Navy and Marine Corps, Defense Logistics Agency and U.S. Special Operations Command each have unique supplements.

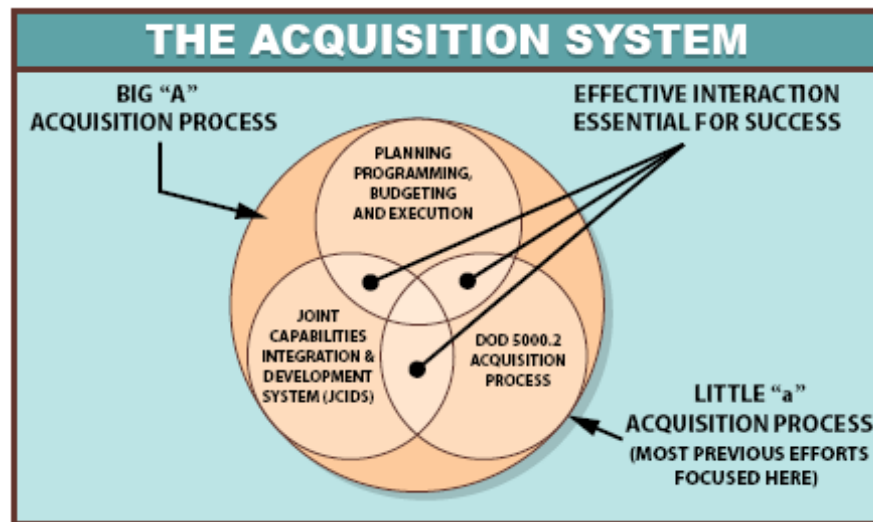
The Organizational Structure

Every weapon system in the U.S. arsenal is created to satisfy a specific *requirement*, must be paid for by the federal *budget*, and is designed and built within an *acquisition system*. Conceptually, these three steps are organized as

1. The Joint Capabilities Integration and Development System (JCIDS) – the requirements system,
2. The Planning, Programming, Budgeting, and Execution System (PPBE) – the resource allocation or budgeting system, and
3. The Defense Acquisition System (DAS) – the acquisition or procurement system.

These three systems do not report to or fall under a single overarching “system”; rather, they operate in a manner similar to a “system of systems”⁹ and are referred to as “Big ‘A’” acquisition (in contradistinction to the Defense Acquisition System which is referred to as “little ‘a’” acquisition). DOD’s defense acquisition structure is characterized in **Figure 1**.

Figure 1. DOD’s Defense Acquisition Structure



Source: Defense Acquisition Performance Assessment Report, February 2006, p. 4.

Joint Capabilities Integration and Development System (JCIDS)

JCIDS is the process by which DOD identifies, assesses, and prioritizes what capabilities the military requires to fulfill its mission. As such, JCIDS is often referred to as the requirements generation process. The requirements identified through JCIDS can be addressed in a number of ways, including changes in doctrine, training, organization, or the acquisition of a new system, such as a weapon system.

⁹ Page GL-19 of Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3170.01G defines a system of systems as “a set or arrangement of interdependent systems that are related or connected to provide a given capability. The loss of any part of the system will significantly degrade the performance or capabilities of the whole.”

The JCIDS process was created in 2003 in an effort to fundamentally change the way the Department of Defense developed requirements. Prior to 2003, DOD used a threat-based approach to identifying warfighter requirements.¹⁰ With the advent of JCIDS, DOD shifted to a capabilities-based approach to identifying warfighter needs. In other words, instead of developing, producing and fielding systems based on specific perceived threats to the nation, DOD adopted a policy of acquiring weapons to meet the strategic direction and priorities set forth in the National Military Strategy (NMS), National Defense Strategy (NDS), and National Strategy for Homeland Security.

JCIDS is governed by *Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3170.01G* (updated March 1, 2009) and utilizes the procedures described in the *Manual for the Operation of the Joint Capabilities Integration and Development System* (updated February 2009).¹¹ According to CJCSI 3170.01G, the Capabilities Bases Assessment (CBA) is the part of the JCIDS process that analyzes the military's capability needs and gaps and recommends both materiel¹² and non-materiel ways to address the gaps.¹³ If, as a result of a CBA, a materiel solution (such as a weapon system) is considered, an Initial Capabilities Document (ICD) is prepared. The ICD justifies the need for a materiel solution to satisfy the identified capability gap. The Joint Requirements Oversight Council (JROC), the organization responsible for identifying and prioritizing warfighter requirements, must approve the ICD.¹⁴ To approve the ICD, the JROC reviews and validates the

1. capabilities required to perform the defined mission,
2. gap in capabilities required to perform the mission, and
3. need to address the capability gap.

The JROC may approve an ICD and recommend a non-materiel solution, such as a change to strategy or tactics. If the JROC approves the pursuit of a materiel solution, the program enters the Defense Acquisition System (DAS). Documentation developed during the JCIDS process is used throughout the acquisition process.

Planning, Programming, Budgeting and Execution System (PPBE)¹⁵

According to DOD, the PPBE is intended to provide Combatant Commanders the best mix of forces, equipment, and support within fiscal constraints; the PPBE develops DOD's proposed budget for all acquisitions, including MDAPs.¹⁶

¹⁰ This threat-based approach was known as the Requirements Generation System (RGS).

¹¹ The manual can be found at https://www.intelink.gov/wiki/JCIDS_Manual.

¹² A materiel item is any item "(including ships, tanks, self-propelled weapons, aircraft, etc., and related spares, repair parts, and support equipment, but excluding real property, installations, and utilities) necessary to equip, operate, maintain, and support military activities without distinction as to its application for administrative or combat purposes". See also equipment; personal property. See DOD Dictionary of Military Terms, <http://www.dtic.mil/doctrine/jel/doddict/>.

¹³ CJCSM 3170.01G, February, 2009, page A-1.

¹⁴ The JROC is a statutorily established council, defined in 10 U.S.C. 181.

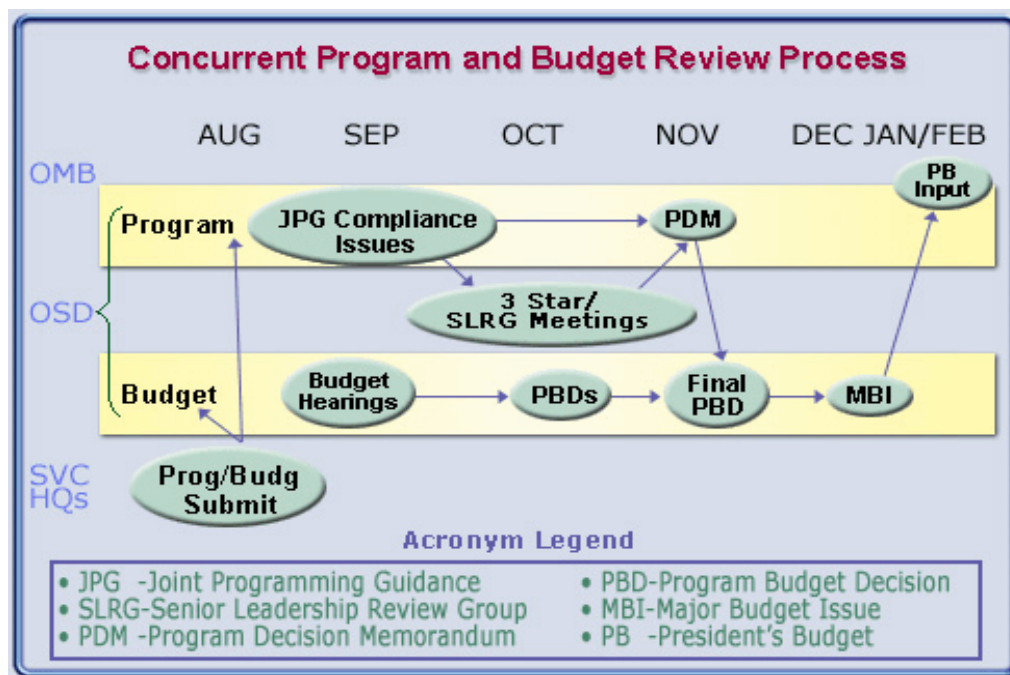
¹⁵ For additional detail, see CRS Report RL30002, *A Defense Budget Primer*, by Mary T. Tyszkiewicz and Stephen Daggett. Additionally, DAU offers an online course on PPBE at <https://learn.dau.mil/html/clc/Clc.jsp>.

¹⁶ Department of Defense Directive 7045.14. *The Planning, Programming, and Budgeting System (PPBS)*. May 22, (continued...)

The PPBE process consists of four stages: planning, programming, budgeting, and execution. During the planning stage, the needs of combatant commands (COCOMs) are analyzed and the findings are published in the Joint Programming Guidance (JPG) document, which guides the DOD components'¹⁷ efforts to propose acquisition programs. During the programming stage, proposed programs are fleshed out and the Program Objective Memorandum (POM) is submitted to propose these programs. A program can be altered by creating a Program Decision Memorandum (PDM).

The next stage, budgeting, occurs concurrently with the programming phase. Proposed budgets are reviewed in a different manner than proposed programs (see **Figure 2**). Upon issuance of a PDM or as a result of a budget review, Program Budget Decisions (PBDs) are issued; once all PBDs are finalized, the DOD components may appeal a decision by submitting Major Budget Issues (MBIs) to the Secretary of Defense (SECDEF). The SECDEF may make a decision based upon the information presented.¹⁸ The execution phase is intended to take place during the off-year PPBE cycle. During this stage, programs are evaluated on their ability to execute, namely to meet established performance metrics, which can include funding obligations and expenditures.

Figure 2. PPBE Concurrent Program/Budget Review



Source: DAU PPBE Continuous Learning Course CLB009, <https://learn.dau.mil/html/clc/Clc.jsp>.

(...continued)

1984, certified as current November 21, 2003, p 2.

¹⁷ DOD components include the Office of the Secretary of Defense (OSD); the Military Departments; the Chairman, Joint Chiefs of Staff (CJCS) and Joint Staff; the Unified Combatant Commands (UCCs); the Defense Agencies; and DOD field activities.

¹⁸ If there is a conflict between DOD's top line budget as prescribed by the Office of Management and Budget (OMB) and DOD's list of required programs, the Secretary of Defense may consult with the President to resolve the conflict.

PPBE planning and programming activities occur in even-numbered years (called “on-years”), while budgeting and execution activities occur in both even and odd-numbered years (called “off-years”). In the off-years, Change Proposals (CPs) can be requested or can result from a DOD review of the program’s performance. **Figure 3** and **Figure 4** illustrate the PPBE process.

Figure 3. PPBE Process Overview On-Year

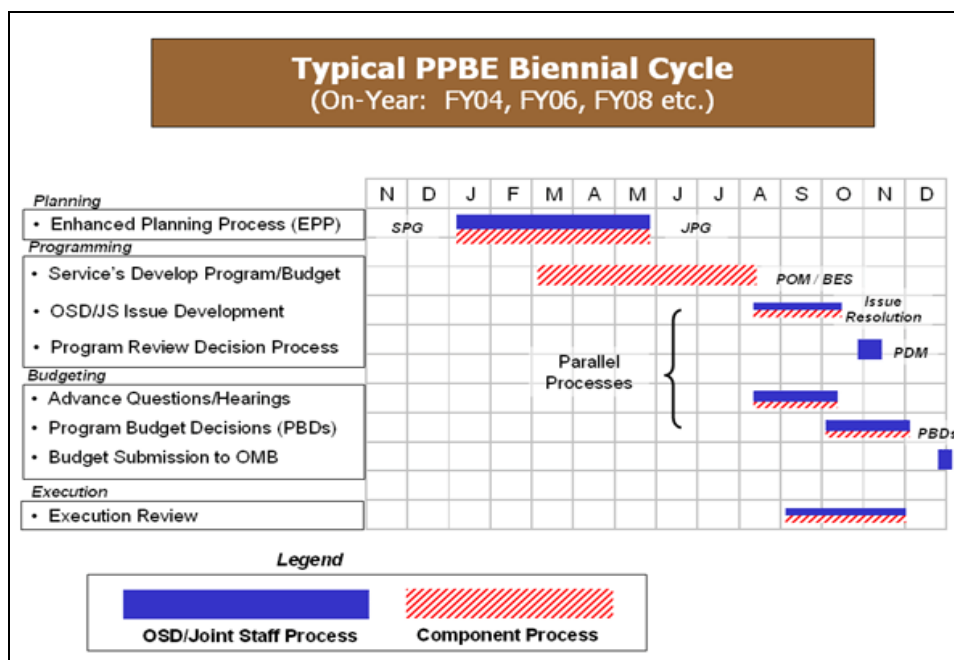
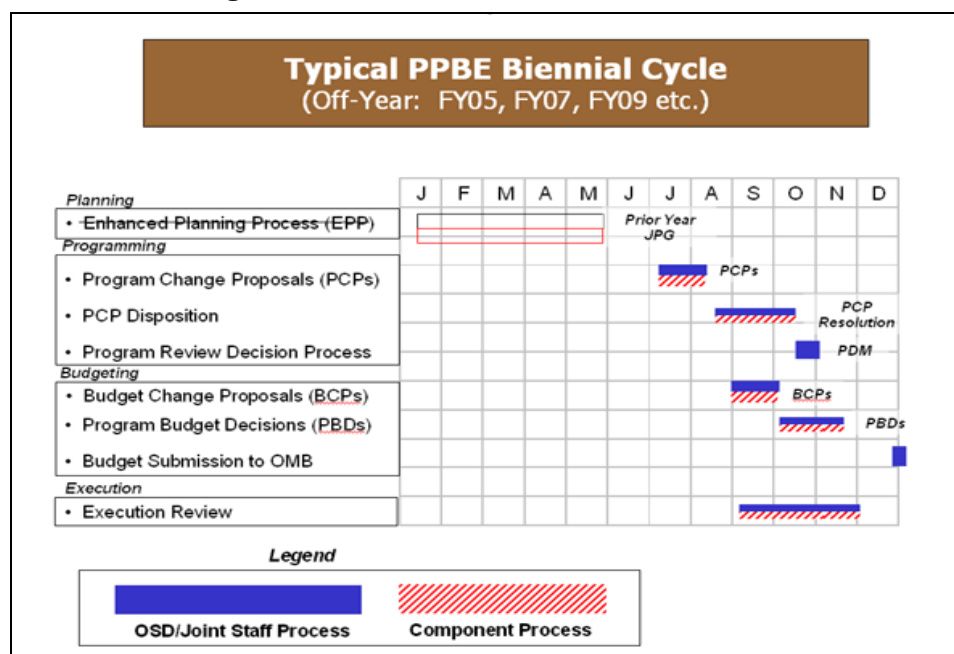


Figure 4. PPBE Process Overview Off-Year



Source: Defense Acquisition Guidebook, Chapter 1.2, https://akss.dau.mil/dag/Guidebook/IG_c1.2.asp#Figure2

Defense Acquisition System (DAS)

The Defense Acquisition System (DAS) is

the management process by which the Department of Defense provides effective, affordable, and timely systems to the users, [and it] exists to manage the nation's investments in technologies, programs, and product support necessary to achieve the National Security Strategy and support the United States Armed Forces.¹⁹

Each acquisition program, such as the F-22, Littoral Combat Ship, or Expeditionary Fighting Vehicle, is managed by an acquisition program office. The program office is headed by a Program Manager (PM). PMs can be military officers or federal civil servants. They are usually supported by a staff that can include engineers, logisticians, contracting officers and specialists, budget and financial managers, and test and evaluation personnel. PMs usually report to a Program Executive Officer (PEO).²⁰ PEOs can have many PMs who report to them. PEOs can also be military officers or federal civil servants. They report to a Component Acquisition Executive (CAE).²¹ Most CAEs report to the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)), who also serves as the Defense Acquisition Executive (DAE).²² This PM-PEO-CAE-DAE chain of command was one of the recommendations of the Packard Commission.

The rules governing the acquisition process are set forth in DOD Instruction (DODI) 5000.02, *Operation of the Defense Acquisition System*. As outlined in DODI 5000.02, the Defense Acquisition System uses “milestones” to oversee and manage acquisition programs (see **Figure 5**). Each milestone has specific requirements. A program must meet the specific statutory and regulatory requirements of a milestone in order to proceed to the next phase of the acquisition process. The Milestone Decision Authority (MDA) is responsible for deciding whether a program meets the milestone criteria and may proceed to the next phase of the acquisition process. Depending on the program, the MDA can be the office of the Undersecretary of Defense (Acquisition, Technology, & Logistics), the head of the relevant DOD component, or the Component Acquisition Authority (see **Table 1**).

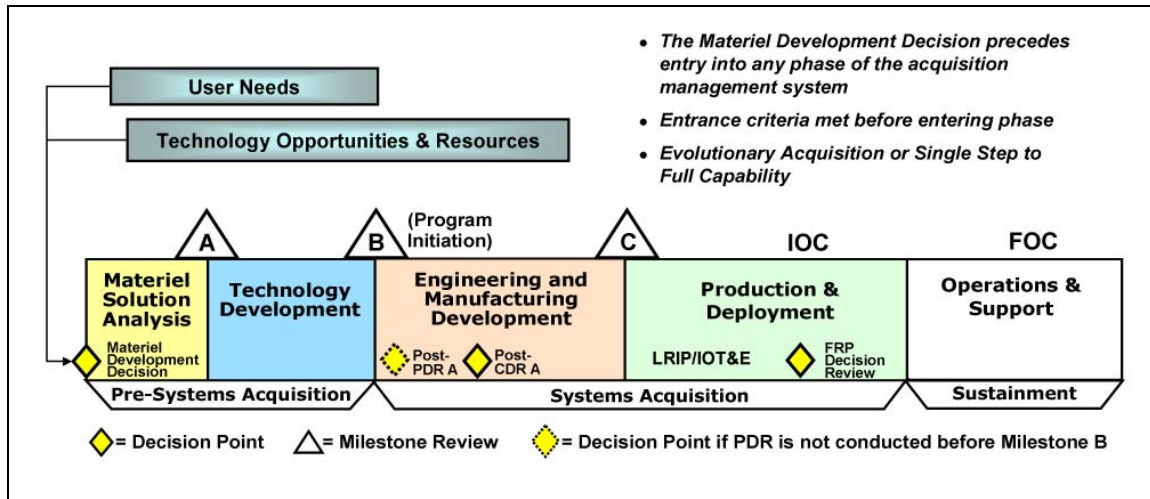
¹⁹ Department of Defense Directive (DODD) 5000.1. *The Defense Acquisition System*. May 12, 2003, certified current as of November 20, 2007, pp. 2-3.

²⁰ Some PMs are labeled “Direct Reporting Program Managers” (DRPMs), who report directly to the Component Acquisition Executive or Milestone Decision Authority.

²¹ A Service Acquisition Executive (SAE) is the CAE for a military department.

²² DODD 5000.1 states that the DAE takes precedence on all acquisition matters after the Secretary and the Deputy Secretary of Defense. Examples of some other reporting chains include the Defense Information Systems Agency (DISA), who reports to the Director of DISA and the Special Operations Command (SOCOM) Acquisition Executive, who reports to the SOCOM Commander.

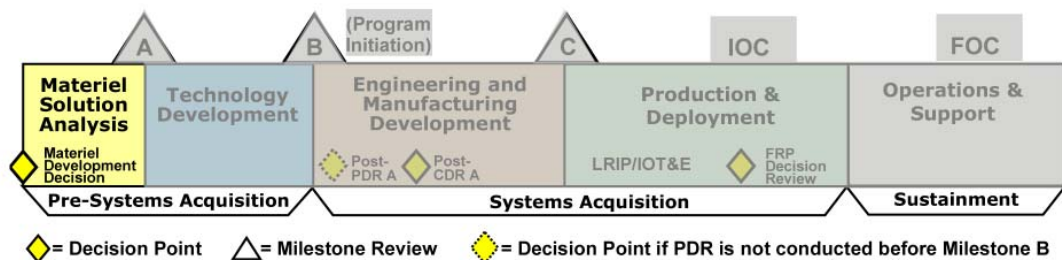
Figure 5. Defense Acquisition Milestones



Source: DODI 5000.02, page 2.

To enter the Defense Acquisition System, a program must pass a Materiel Development Decision (MDD) review.²³ The Milestone Decision Authority determines if a program will enter the acquisition management system. The MDA can authorize a program to enter at any point in the acquisition system as long as the program meets the standards for that phase of the system. For example, a program can enter the system at Milestone B if 1) a Materiel Development Decision is made, 2) the program meets the criteria for entering into Milestone B as set forth by statute and DOD policy, and 3) the MDA authorizes the program to enter at Milestone B.

Figure 6. Defense Acquisition Milestones: Materiel Solution and the Pre-Milestone Phase

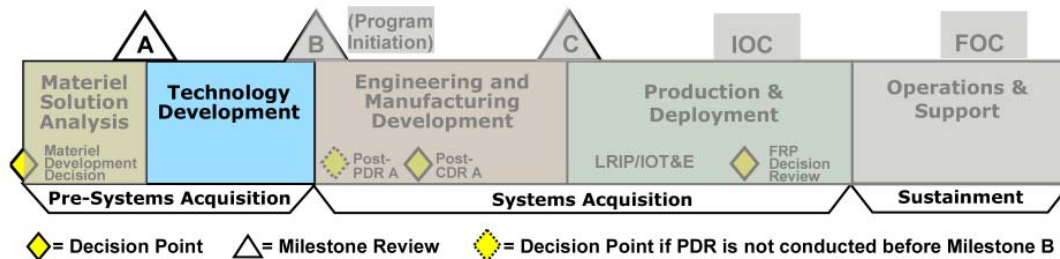


The Materiel Solution Analysis Phase assesses potential materiel solutions for a military need, and begins only after an Initial Capabilities Document (ICD) has been approved by the JROC. During this phase, an Analysis of Alternatives (AoA) is conducted and a Technology Development Strategy (TDS) is created. This phase encompasses the Materiel Development Decision (MDD) review. At the review, JROC recommendations are presented by the Joint Staff, and the relevant component presents the Initial Capabilities Document, which details the operational need for a materiel solution. The materiel solution phase ends when the AoA is

²³ The Materiel Development Decision replaces the Concept Decision requirement used prior to December, 2008.

completed, the lead component recommends materiel solutions identified by the Initial Capabilities Document, and the program meets the criteria for the milestone where the program will enter the acquisition system.

Figure 7. Defense Acquisition Milestones: Milestone A and the Technology Development Phase



The Technology and Development Phase is where a program determines what technologies are required to develop a materiel solution, and works to mature those technologies. To enter this phase of the acquisition system, a program must have an approved AoA, full funding for the technology development phase, and pass Milestone A. To pass Milestone A, the lead component must submit a cost estimate for the solutions identified in the AoA,²⁴ and the MDA must approve the materiel solution and the Technology Development Strategy.²⁵

During this phase, technologies are developed, matured, and tested. To be considered mature enough for product development, technologies must be tested and demonstrated in a ‘relevant’—or preferably, ‘operational’—environment. In addition, a Capability Development Document²⁶ and Reliability, Availability, and Maintainability (RAM) strategy²⁷ must be developed. This phase is also where competitive prototyping occurs.²⁸

The Technology Development Phase is complete when, among other things, an affordable program (or increment) is identified and the technology and manufacturing processes have been demonstrated in a relevant environment.

²⁴ The MDA could require the Cost Analysis Improvement Group to submit an independent cost estimate.

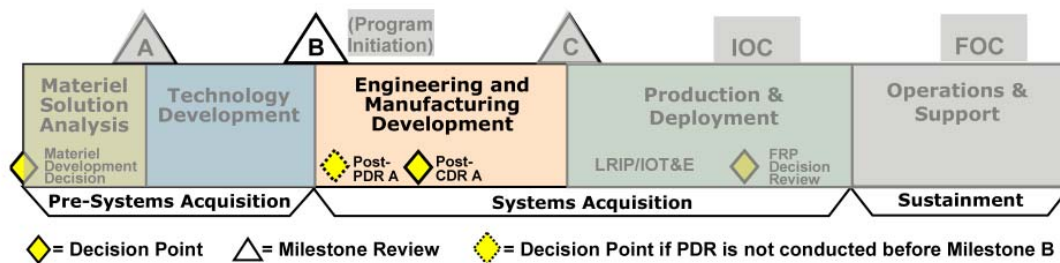
²⁵ A Technology Development Strategy (TDS) must include, among other things, a discussion on whether the program is pursuing an evolutionary or single-step strategy for technology development, a preliminary acquisition strategy, and specific cost, schedule, and performance goals for technology development.

²⁶ A Capability Development Document details the operational performance parameters for the anticipated system.

²⁷ RAM refers to the reliability, availability, and maintainability of a system. Reliability is the probability of a system performing a specific function under stated conditions for a specified time. Availability is the measure of time a system is operable and able to be committed to a mission. Maintainability is the extent to which a system can be kept in or restored to a specific operating condition. See Department of Defense, *DOD Guide for Achieving Reliability, Availability, and Maintainability*, August 3, 2005, p. 1-1, at http://www.acq.osd.mil/sse/docs/RAM_Guide_080305.pdf.

²⁸ Competitive prototyping is when competing industry teams develop competing prototypes of a required system.

Figure 8. Defense Acquisition Milestones: Milestone B and the Engineering and Manufacturing Development Phase



The Engineering and Manufacturing Development Phase is where a system (or increment) is developed, full system integration occurs, and preparations are made for manufacturing (including developing manufacturing processes, designing for producibility, and managing cost). To enter this phase of the acquisition system, a program must have mature technology,²⁹ approved requirements,³⁰ full funding, and pass Milestone B. To pass Milestone B, the MDA must, among other things, approve the Acquisition Strategy, the Acquisition Program Baseline³¹, and the type of contract that will be used to acquire the system. Most programs are initiated at Milestone B.³²

Engineering and Manufacturing Development consists of two sub-stages: system integration (known as Integrated System Design) and system demonstration (known as System Capability & Manufacturing Processes Demonstration). During system integration, the various subsystems are integrated into one system and a development model or prototype is produced. To move from system integration to system demonstration, the MDA must complete a Post-preliminary Design Review (PDR) and Post-Critical Design Review (CDR) Assessment. These assessments review the extent to which the system meets requirements and design maturity, respectively.

During system demonstration, the model or prototype enters into developmental testing to demonstrate its military usefulness (consistent with the Key Performance Parameters), and that the system can be supported through manufacturing processes. Much of the testing and evaluation of the system occurs in this phase. This phase is complete when, among other things, the system meets performance requirements as demonstrated by a production-representative article in an intended environment, and manufacturing processes have been demonstrated.

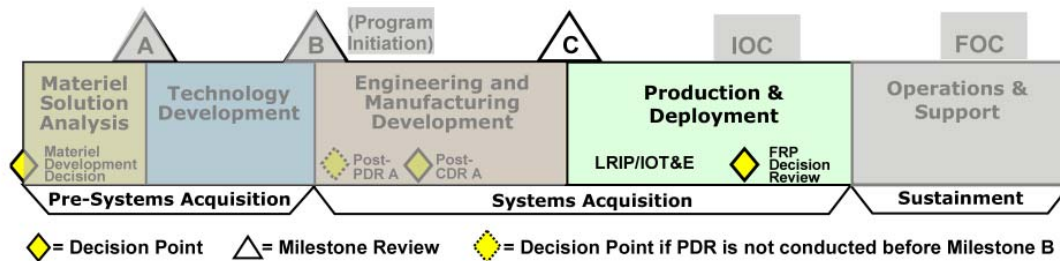
²⁹ Not all technologies intended for the system are required to be mature to proceed to Milestone B. Some technologies that are still immature may remain in technology development while others proceed to Milestone B as long as the technologies proceeding to Milestone B provide an affordable, militarily useful capability. DOD's approach to proceeding with detailed design and integration of mature technologies while continuing risk reduction of other less mature technologies that will be integrated later is called Evolutionary Acquisition.

³⁰ Before Engineering and Manufacturing Development can occur, a program must have approved Key Performance Parameters (KPPs). These KPPs can be amended later.

³¹ The Acquisition Program Baseline (APB) details the performance, schedule, and cost goals of the program. The APB contains both objective (desired) and threshold (acceptable) values.

³² First-in-class ships are usually authorized at Milestone B.

Figure 9. Defense Acquisition Milestones: Milestone C and the Production and Deployment Phase



The Production and Deployment phase is where a system is produced and deployed. To enter this phase, a program, among other things, must have passed developmental testing and operational assessment, demonstrated interoperability and operational supportability, demonstrated affordability, be fully funded, and pass Milestone C. At Milestone C, the MDA authorizes the beginning of low-rate initial production (LRIP), which is intended to both prepare manufacturing and quality control processes for a higher rate of production and provide production-representative articles for operational test and evaluation (OT&E).³³ Upon completion of OT&E and demonstration of adequate control over manufacturing processes, and with the approval of the MDA, a program can go into full rate production. When enough systems are delivered and other pre-defined criteria are met, an Initial Operating Capability (IOC) can be attained, allowing for some degree of operations. Full Operational Capability (FOC) is achieved when the system is ready to operate as required.

Acquisition Categories (ACATs)

Programs are divided into acquisition categories (ACATs) based primarily on program value. Management and oversight of acquisition programs increases as the value of the program increases. The most significant DOD and Congressional oversight activities apply to MDAPs,³⁴ which are categorized as ACAT I programs.³⁵ **Table 1** illustrates the thresholds and decision authorities for all ACATs.

³³ Not all systems require LRIP. For example, aircraft carriers do not have large production runs and, therefore, do not have an LRIP. Such programs go straight into full-rate production.

³⁴ A number of statutory reporting and oversight requirements applicable only to MDAPs are codified at 10 U.S.C. 144.

³⁵ Major Automated Information Systems (MAIS) have different dollar thresholds than MDAPs, as shown below in **Table 1**.

Table I. Description of Acquisition Categories

Category	Reason For ACAT Designation	Decision Authority
ACAT I	Program is an MDAP Value of program estimated by USD(AT&L) to require RDT&E in excess of \$365 million in FY2000 constant dollars or for procurement of more than \$2.19 billion in FY2000 constant dollars MDA Designates program as an ACAT I	ACAT ID: USD(AT&L) ACAT IC: Head of DOD Component or, if delegated, the CAE
ACAT IA ^a	Major Automated Information System (MAIS) - An Automated Information System (AIS)^b that is estimated to have in excess of \$32 million in FY2000 constant dollars for all expenditures directly related to the system, incurred in any single year (including all increments); \$126 million in FY2000 constant dollars for all expenditures directly related to the system, incurred from the start of the Material Solution Analysis Phase through deployment at all sites (including all increments); or \$378 million in FY2000 constant dollars for all expenditures directly related to the system, incurred from the start of the Material Solution Analysis Phase through sustainment for the estimated useful life of the system (including all increments). MDA Designates program as an ACAT IA	ACAT IAM: USD(AT&L) or delegate ACAT IAC: Head of the DOD Component or, if delegated, the CAE
ACAT II ^c	Does not meet criteria for ACAT I Is a Major System Value of program estimated by DOD Component to require RDT&E in excess of \$140 million in FY2000 constant dollars or for procurement of more than \$660 million in FY2000 constant dollars MDA Designates program as an ACAT I	CAE or designee of the CAE
ACAT III	Does not meet criteria for ACAT II AIS that is not an MAIS	Designee of the CAE

Source: Department of Defense Instruction 5.000.02, December 8, 2008

Notes:

- An ACAT IA program can meet the definition of an MDAP. The MDA designates MAIS programs as ACAT IAM or ACAT IAC.
- An Automated Information System (AIS) is a system of computer hardware, computer software, data or telecommunications that performs functions such as collecting, processing, storing, transmitting, and displaying information. Some computer resources are excluded, including hardware and software systems that are an integral part of a weapon or weapon system, or are used for highly programs.
- MAIS programs can not be categorized as an ACAT II.

Acquisition Reform

For more than 100 years, the executive and legislative branch and Congress have been frustrated with the level of mismanagement and corruption in defense acquisitions, and spent significant resources seeking to reform and improve the process. For example, in 1862, during the Civil War, President Abraham Lincoln requested the resignation of Secretary of War Simon Cameron, in large part because of contracting corruption and mismanagement in the War Department. That same year, the House Committee on Contracts issued a 1,100 page report that documented corruption and mismanagement in defense acquisitions that resulted in the government buying weapons that did not work, horses that were diseased, and food that was rotten.³⁶

More recently, concerns over defense acquisitions have centered around significant cost overruns, schedule delays, and an inability to get troops in the field the equipment they need when they need it. Many analysts believe that cost overruns and schedule delays have a debilitating effect on our military and threaten America's technological advantage and military capabilities.³⁷

Both Congress and DOD have been active in trying to improve defense acquisitions. As Deputy Secretary of Defense William Lynn recently stated, "Since the end of World War II, there have been nearly 130 studies on acquisition reform."³⁸ Despite the numerous studies, congressional hearings, and DOD reports that have often echoed the same themes and highlighted the same weaknesses in the acquisition process, acquisition reform efforts pursued over the last 30 years have been unable to rein in cost and schedule growth.³⁹

Recent Analysis of Defense Acquisitions

Effectively implementing lasting reform has historically presented a great challenge for both DOD and Congress. This challenge was apparent when the Packard Commission issued recommendations that were "a virtual mirror-image of the Fitzhugh Commission report" of 1970.⁴⁰ In 1989, the House Armed Services Committee held oversight hearings to determine what remaining work was needed to fully implement the Packard Commission's recommendations. It found that important recommendations "were either never implemented or attempted but quickly abandoned."⁴¹ Some analysts believe that the Commission and the subsequent Goldwater-Nichols

³⁶ See "Government Contracts: The Fraud of the Contractors," *New York Times*, February 6, 1862, p. 2. According to one media report, the committee considered passing a bill that would allow for the death penalty in cases where a person is found guilty of "commit[ting] a fraud upon the Government, whereby a soldier is bodily injured, as for instance in the sale of unsound provisions." See also, Dorris Kearns Goodwin, *Team of Rivals* (New York, NY : Simon & Schuster Paperbacks, 2006), p. 413. Imposing such a death penalty on contractors who defraud the government could raise constitutional issue of "cruel and unusual punishment" and could have a negative impact on the size of the defense industrial base.

³⁷ See Defense Science Board, *Defense Imperatives for the New Administration*, August 2008, p. 3.

³⁸ U.S. Congress, House Committee on Armed Services, *The Department of Defense at High Risk: The Recommendations of the Chief Management Officer on Acquisition Reform and Related High Risk Areas*, 111th Cong., 1st sess., May 6, 2009, p. 8.

³⁹ See: CRS Written Statement submitted to the Senate Armed Services Committee, *Defense Acquisition Reform*, by: Moshe Schwartz, March 3, 2009.

⁴⁰ Reeves, p. 16. The Fitzhugh Commission report was the result of a major examination of Defense Acquisition practices. It is both summarized and published in its entirety in CRS LTR 88-1399, available through request to CRS.

⁴¹ Murdock, Flournoy, et al., p. 90.

efforts were very constructive, making major contributions in reforming DOD's acquisition structure and practices. Others argue however, that the "case can be made that Goldwater-Nichols never implemented the Packard Commission principles"⁴² and that "Goldwater-Nichols reforms attempted, but ultimately failed, to get at the root of DOD's acquisition execution problems."⁴³ Today, DOD acquisition structure and practice challenges continue, as do efforts to improve them.

Major Reports Since 2000

In recent years, a number of major reports were published that focus on and discuss challenges facing defense acquisitions as well as make recommendations to mitigate them. These reports include the Center for Strategic and International Studies' (CSIS) *Beyond Goldwater-Nichols (BGN) Series Volume Two* (July 2005)⁴⁴, the *Defense Acquisition Performance Assessment (DAPA) Report* (January 2006)⁴⁵, the Defense Science Board's (DSB) *Summer Study on Transformation: A Progress Assessment, Volume One* (February 2006),⁴⁶ and the Defense Science Board's *Creating an Effective National Security Industrial Base for the 21st Century: An Action Plan to Address the Coming Crisis* (July 2008).⁴⁷

In 2007, two DOD reports were issued that looked at different types of acquisitions and made recommendations for improving the acquisition process. The reports are the *Report of the Acquisition Advisory Panel to the Office of Federal Procurement Policy and the United States Congress*⁴⁸ (January 2007), which focuses on the acquisition of services; and *Urgent Reform Required: Army Expeditionary Contracting—Report of the Commission on Army Acquisition and*

⁴² Murdock, Flournoy, et al., p. 96.

⁴³ Scruggs, David, et al. *Beyond Goldwater-Nichols - An Annotated Brief - Department of Defense Acquisition and Planning, Programming, Budgeting and Execution System Reform - Phase III*. August 2006, p. 19. Additionally former Senator Sam Nunn, who was instrumental in the formulation and passage of Goldwater-Nichols, states in the foreword of Locher's book that "Although the services now fight jointly, greater jointness may now be required in how the department 'organizes, trains and equips' – the title 10 U.S. Code, functions assigned to the separate services."

⁴⁴ Of the four volumes published in the BGN series, volume two includes the most focused analysis of defense acquisitions, including a dedicated chapter on the subject. The chapter gives a brief history of acquisition reforms in the 1980s, an outline of current challenges and three recommendations for improving Defense Acquisition. The chapter also gives consideration to the "Big 'A'" and "little 'a'" definition of defense acquisition and also makes recommendations to improve the JCIDS and PPBE processes elsewhere in volume two and the annotated brief of volume three respectively. See http://www.csis.org/media/isis/pubs/bgn_ph2_report.pdf.

⁴⁵ The DAPA report focused solely on defense acquisition as was clearly directed by the Acting Deputy Secretary of Defense Gordon England in his June 7, 2005 request for "an integrated acquisition assessment to consider every aspect of acquisition." The DAPA report contains six individual major elements; organization, workforce, budget, requirements, acquisition and industry. Each major element contains the panel's performance assessment, major findings, performance improvement and implementation criteria. See <http://www.acq.osd.mil/dapaproject/documents/DAPA-Report-web/DAPA-Report-web-feb21.pdf>.

⁴⁶ See http://www.acq.osd.mil/dsb/reports/2006-02-DSB_SS-Transformation_Report_Vol_1.pdf.

⁴⁷ See <http://www.acq.osd.mil/dsb/reports/2008-07-DIST.pdf>

⁴⁸ The FY2004 National Defense Authorization Act enacted the Services Acquisition Reform Act of 2003, which authorized the Acquisition Advisory Panel (the SARA panel). The panel sought to identify current commercial practices for making acquisitions, with an emphasis on service acquisitions by large businesses. Based on these commercial practices, the panel made a number of recommendations aimed at improving the government acquisition process.

*Program Management in Expeditionary Operations*⁴⁹ (October 2007), which focuses on contingency contracting.

Together, all of these reports offer many observations and recommendations on how to improve defense acquisitions. All of the reports recognized the need for far-reaching and significant improvements to the acquisition process and often echo similar themes, including the need to

- Recognize the importance of having military requirements, resource allocation, and acquisition processes work together throughout the acquisition process.
- Focus more attention on developing requirements and making sure that Combatant Commanders are more involved in the requirements generation for weapons systems.
- Implement specific reforms relating to the office of the USD(AT&L) such as elevating the role of the Director of Defense Research and Engineering (DDR&E) and requiring the USD(AT&L) to develop a multi-year business plan relating resources to mission purposes
- Implement acquisition “best practices” including (1) risk-based source selection; (2) time certain development; (3) a return to spiral development; (4) using judgment-based instead of requirement-based execution and; (5) expanding and rationalizing the use of rapid acquisition.
- Improve the defense acquisition workforce by (1) recruiting the best leaders and specialists from industry; (2) developing improved personnel developmental opportunities and establishing clear acquisitions career paths; (3) increasing the number of federal employees in critical skill areas; and (4) establishing a consistent definition of the acquisition workforce.⁵⁰
- Generally, transform the culture of DOD to recognize the importance of contracting.

Periodic GAO Reports

The Government Accountability Office (GAO) regularly produces in-depth reports that address specific issues and make recommendations on those issues to improve the defense acquisition structure and acquisition practices. From January through April 2008 alone, GAO published four reports on defense acquisitions and testified before Congress on the topic seven times.⁵¹

⁴⁹ The Commission was chartered “to review the ‘lessons learned’ in recent operations, and make recommendations to assist the Department of the Army in ensuring that future such operations achieve greater effectiveness, efficiency, and transparency.” The report, also known as the Gansler report after commission chairman Dr. Jacques Gansler, made a number of recommendations centered around four main themes: (1) increasing the stature of the acquisition workforce, (2) restructuring the acquisition process and creating clear lines of responsibility, (3) improving training and provide better resources to contracting personnel, and (4) creating a legislative, regulatory, and policy framework to improve contracting effectiveness.

⁵⁰ This brief list is not all-inclusive or as detailed as the individual reports themselves, but is meant to serve as a brief summary of the common themes of the reports.

⁵¹ A summary of GAO reports on various DOD challenges, including defense acquisitions and related topics, can be found at <http://www.gao.gov>.

Since 1990, when it first began reporting on government operations that it considered high-risk, GAO has continuously identified DOD weapon systems acquisitions as high-risk. GAO's 2009 High Risk report stated "DOD's processes for identifying warfighter needs, allocating resources, and developing and procuring weapon systems ... are fragmented and broken."⁵² GAO has also identified DOD contract management as an area of high-risk, noting that an insufficient number of trained acquisition and contract oversight personnel and the use of inappropriate types of contracts puts DOD at risk of not getting the types of goods and services it needs and over-paying for what it buys.⁵³ According to GAO, these problems have contributed to significant cost growth in weapons systems: estimated FY2008 acquisition costs for major defense programs grew by \$296 billion, an increase of 25% over initial estimates.⁵⁴

GAO made a number of recommendations to improve DOD's acquisition process. For example, in testimony before the House Armed Services Committee, GAO stated

- DOD's processes for setting requirements, providing funding, and managing acquisitions do not work together, resulting in a disconnect between the programs that are started and the funding that is available,
- DOD's process for determining weapon system requirements (JCIDS) does not evaluate projects from a joint or department-wide perspective and does not have the flexibility to quickly respond to emerging warfighter needs,
- DOD's process for funding programs (PPBE) "creates an unhealthy competition for funds that encourages sponsors of weapon system programs to pursue overly ambitious capabilities and to underestimate costs, and
- DOD's process for acquiring weapon systems allows acquisition programs to proceed through key decision points without sufficiently reliable information on funding, schedule, and technology upon which to make a sound decision."⁵⁵

Recent DOD Reform Efforts

In FY2009, DOD has taken a number of steps to reform the process by which it buys major weapon and IT systems. On December 8, 2008, DOD issued an updated DOD Instruction 5000.2, which included a number of major systemic changes, including a mandatory requirement for competitive prototyping, more of an emphasis on systems engineering and technical reviews, and a requirement that all programs go through a Material Development Decision process prior to entering the acquisition system. In addition, on March 1, 2009, DOD issued an updated Instruction, *Joint Capabilities Integration and Development System* (CJCSI 3170.01G), aimed at streamlining the requirement validation process and expanding the role of the Joint Capability Board, which reviews and, if appropriate, endorses requirements before they are submitted to the

⁵² U.S. Government Accountability Office, *High Risk Series - An Update*, GAO-09-271, January 2009, p. 65.

⁵³ *Ibid*, p. 73.

⁵⁴ U.S. Government Accountability Office, *Assessments of Selected Weapon Programs*, GAO-09-326SP, March 30, 2009, p. Highlights.

⁵⁵ U.S. Government Accountability Office, *DEFENSE ACQUISITIONS: Charting a Course for Lasting Reform*, GAO-09-663T, April 30, 2009, pp. 4-7.

Joint Requirement Oversight Council (JROC). The new instruction also calls for Combatant Commanders to be more involved in establishing requirements.⁵⁶

DOD is also taking steps to reform how it manages its budget and allocates funds across weapon system programs. DOD indicates that it has instituted capability portfolios to help set budget priorities within each capability area. DOD is also attempting to cancel or significantly curtail programs that experience significant cost growth or programs that it believes can no longer be justified financially. For example, in July 2008, following a Nunn-McCurdy cost breach, John Young, then Under Secretary of Defense for Acquisition, Technology, and Logistics, in consultation with senior Army officials, cancelled the ARH program because of cost and schedule growth.⁵⁷

In a press conference in May 2009, Secretary Gates announced additional steps to tackle the issue of cost and schedule growth in weapon system acquisitions. Specifically, he called for stopping programs that significantly exceed budget, do not meet current military needs, or do not have sufficiently mature technology.⁵⁸ Addressing programs with significant cost growth, he called for the cancellation of a number of programs, including the VH-71 presidential helicopter and the Air Force Combat Search and Rescue X (CSAR-X) program. He also called for the cancellation of programs in which he questioned the validity of their requirements and the maturity of the technology - such as the ground components of the Future Combat System and missile defense's Multiple Kill Vehicle (MKV). This action is consistent with his prior statements, in which he argued that in recent years, weapon systems have added unnecessary requirements and proceeded with immature technology - resulting in higher costs, longer acquisition schedules, and fewer quantities.⁵⁹ The President's budget request for FY10 reflected Secretary Gates' stated desire to curtail or cancel a number of weapon system programs.

Congressional Reform Efforts

In recent years, the primary mechanism in which Congress has exercised its legislative powers to reform the defense acquisition structure has been the annual National Defense Authorization Acts (NDAAAs). Sections of the acts have prescribed requirements applicable to both specific acquisition programs and the structure overall, the latter of which has typically been addressed in Section VIII of the acts, usually titled "Acquisition Policy, Acquisition Management, and Related Matters". Generally, the requirements prescribed in this section have focused on specific issues rather than a comprehensive overhaul of the entire defense acquisition structure. The annual

⁵⁶ According to GAO, the Joint Requirements and Oversight Council "has been doing more to seek out and consider input from the combatant commanders (COCOMs)... through regular trips and meetings to discuss capability needs and resource issues." See U.S. Government Accountability Office, *DEFENSE ACQUISITIONS: Charting a Course for Lasting Reform*, GAO-09-663T, April 30, 2009, p. 9.

⁵⁷ See: CRS Written Statement submitted to the Senate Armed Services Committee, *Defense Acquisition Reform*, by: Moshe Schwartz, March 3, 2009. See also, Department of Defense, "DoD Announces Non-Certification Of Armed Reconnaissance Helicopter Program," press release, October 16, 2008, at <http://www.defenselink.mil/releases/release.aspx?releaseid=12288>.

⁵⁸ Department of Defense, "Secretary of Defense Robert M. Gates Opening Statement," press release, April 6, 2009, at <http://www.defenselink.mil/transcripts/transcript.aspx?transcriptid=4396>.

⁵⁹ Robert M. Gates, "A Balanced Strategy: Reprogramming The Pentagon For A New Age," *Foreign Affairs*, January 2009.

appropriations acts also exert significant influence on Defense Acquisitions via Congress's "power of the purse."⁶⁰

Occasionally Congress will pass defense acquisition reform as a stand-alone law. For example, in May 2009, Congress passed and the President signed into law the Weapon Systems Acquisition Reform Act of 2009 (S. 454/P.L. 111-23). The act included a wide range of acquisition reforms that touched a number of different issues (see below for a detailed discussion of the act).

Congress has also acted in its oversight role to stay informed of the latest DOD efforts. Section 804 of the Fiscal Year 2007 John Warner National Defense Authorization Act (H.R. 5122/P.L. 109-364) requires DOD to submit biannual reports to Congress on the implementation of acquisition reform in DOD. By statute, the reports were to be submitted by January 1 and July 1 of each year until December 31, 2008. Congress required that the reports take into consideration the Defense Acquisition Performance Assessment report, the Defense Science Board Summer Study on Transformation, the CSIS report *Beyond Goldwater-Nichols*, and the Quadrennial Defense Review of 2006.⁶¹ DOD's first report, submitted February, 2007,⁶² summarized the initiatives DOD is pursuing in six areas: workforce, acquisition, requirements, budget, industry, and organization. DOD's second report, submitted July 2007, updated DOD progress in all six areas outlined above.⁶³ In its third report, dated March, 2008, DOD tracked its progress in implementing all 55 recommendations for improving defense acquisitions found in the DAPA, Defense Science Board, and CSIS reports.⁶⁴ In the final report, dated February, 2009, DOD developed a scorecard and broke out each of the 55 recommendations individually, quantifying and comparing the progress made on each recommendation.⁶⁵

FY2007–2009 Legislative Activity

Weapon Systems Acquisition Reform Act of 2009 (S. 454/P.L. 111-23)

The Weapon Systems Acquisition Reform Act of 2009, aimed at reforming DOD's process for acquiring MDAPs and MAISs, became public law on May 22, 2009. Key provisions in the act include the appointment of a Director of Cost Assessment and Program Evaluation within DOD

⁶⁰ For a brief procedural overview, see CRS Report RS20371, *Overview of the Authorization-Appropriations Process*, by Bill Heniff Jr. For a history of Defense Authorization and Appropriations Bills from FY1970 through FY2007, see CRS Report RL33405, *Defense: FY2007 Authorization and Appropriations*, by Stephen Daggett and CRS Report 98-756, *Defense Authorization and Appropriations Bills: FY1970-FY2009*, by Thomas Coipuram Jr.

⁶¹ Within the QDR, defense acquisitions are addressed in the section entitled "Reshaping the Defense Enterprise". There is only a brief subsection that is specifically titled *Improving Defense Acquisition Performance* which notes that "there are several ongoing reviews of defense acquisition improvements being conducted both within and outside the Department in an effort to address these issues. Their results will inform the Department's efforts to reshape defense acquisitions into a truly 21st century process that is responsive to the joint warfighter." See <http://www.defenselink.mil/qdr/report/Report20060203.pdf>. Section 941 of H.R. 4986 authorizes the conduct of the next QDR.

⁶² See <http://www.defenselink.mil/pubs/pdfs/804Reportfeb2007.pdf>

⁶³ See http://www.defenselink.mil/pubs/pdfs/804JulFinalReport_to_Congress.pdf.

⁶⁴ According to statute, the report was to be submitted to Congress by January 1, 2008. However, the report is dated March 2008. See http://www.acq.osd.mil/at/docs/804_defense_acquisition_transformation_report_mar_2008.pdf

⁶⁵ As of May 20, 2009, this report was not posted on the internet along with the other reports. The report was provided to CRS by DOD and is expected to be posted at <http://www.acq.osd.mil/at/media.html#congress>, where the other Section 804 reports are posted.

who will communicate directly with the Secretary of Defense and Deputy Secretary of Defense and who will issue policies and establish guidance on cost estimating and developing confidence levels for such cost estimates; the appointment of a Director of Developmental Test and Evaluation who will be the principal advisor to the Secretary of Defense on developmental test and evaluation and will develop policies and guidance for conducting developmental testing and evaluation in DOD, as well as review, approve, and monitor such testing for each MDAP; the appointment of a Director of Systems Engineering who will be the principal advisor to the Secretary of Defense on systems engineering and will develop policies and guidance for the use of systems engineering, as well as review, approve, and monitor such testing for each MDAP; a requirement that the Director of Defense Research and Engineering periodically assess technological maturity of MDAPs and annually report findings to Congress; requiring the use of prototyping, when practical; a requirement that combatant commanders have more influence in the requirements generation process; changes to the Nunn-McCurdy Act, including rescinding the most recent Milestone approval for any program experiencing critical cost growth; and a requirement that DOD revise guidelines and tighten regulations governing conflicts of interest by contractors working on MDAPs.

FY2009 Duncan Hunter National Defense Authorization Act (S. 3001/P.L. 110-417)

The FY2009 National Defense Authorization Act became public law on October 14, 2008. Instead of a conference report, a joint explanatory statement was entered into the Congressional Record on September 23, 2008.⁶⁶ The Act's section on Acquisition Policy, Acquisition Management, and Related Matters (Title VIII) was subdivided into eight subtitles: Subtitle A, Acquisition Policy and Management; Subtitle B, Provisions Relating to Major Defense Acquisition Programs; Subtitle C, Amendments to General Contracting Authorities, Procedures, and Limitations; Subtitle D, Provisions Relating to Acquisition Workforce and Inherently Governmental Functions; Subtitle E, Department of Defense Contractor Matters; Subtitle F, Matters Relating to Iraq and Afghanistan; Subtitle G, Governmentwide Acquisition Improvements; and Subtitle H, Other Matters. Three of the FY2009 act subtitles (Subtitles D, F, and G) were not in the FY2008 authorization act.

Key provisions in the act include a requirement that the Secretary of Defense commission a study to assess the effectiveness of the process used to generate urgent operational need requirements (Section 801); the establishment of Configuration Steering Boards designed to control cost and schedule growth for major defense acquisition programs (Section 814); a statement that it is the sense of Congress that private security contractors should not be used to provide security in a high-threat environment that is in an area of combat operations (Section 832); a requirement that policies be established to ensure that the acquisition workforce attracts quality officers and civilian personnel, including the establishment of a minimum number of billets reserved for general and flag officers in the acquisition workforce (Section 834); a requirement that a conflict of interest policy be developed for employees of defense contractors akin to the policy in place for DOD civilian employees (Section 841); the establishment of a contingency contracting corps (Section 870); the development of guidance to ensure that urgent requirements submitted by

⁶⁶ See "Joint Explanatory Statement Submitted by Mr. Skelton, Chairman, of the Committee on Armed Services, Regarding the Amendment of the House of Representatives to S. 3001," Joint Explanatory Proceeding, *Congressional Record*, daily edition, September 22, 2008, pp. H8718- H9081 of the Congressional Record on September 23, 2008.

operational commanders are expedited for review (Section 813). The bill also states that it is the sense of Congress that the interrogation of detainees is an inherently governmental function that should not be performed by private contractors (Section 1057), and that each strategic human capital plan required by the act specifically address the defense acquisition workforce (Section 869).

FY2008 National Defense Authorization Act (H.R. 4986/P.L. 110-181)

The original bill, H.R. 1585, was vetoed by the President on December 28, 2007. A new bill, H.R. 4986, was introduced in the House on January 16, 2008, and passed the same day. The bill passed the Senate on January 22, 2008, and was signed by the President January 28, 2008. The FY2008 Defense Authorization Act's section on Acquisition Policy, Acquisition Management, and Related Matters (Title VIII) was subdivided into eight subtitles: Subtitle A, Acquisition Policy and Management; Subtitle B, Provisions Relating to Major Defense Acquisition Programs; Subtitle C, Amendments to General Contracting Authorities, Procedures, and Limitations; Subtitle D, Accountability in Contracting; Subtitle E, Acquisition Workforce Provisions; Subtitle F, Contracts in Iraq and Afghanistan; Subtitle G, Defense Materiel Readiness; and Subtitle H, Other Matters. Four of the FY2008 act subtitles (Accountability in Contracting, Acquisition Workforce, Contracts in Iraq and Afghanistan, and Defense Materiel Readiness) were not in the FY2006 or FY2007 authorization acts.

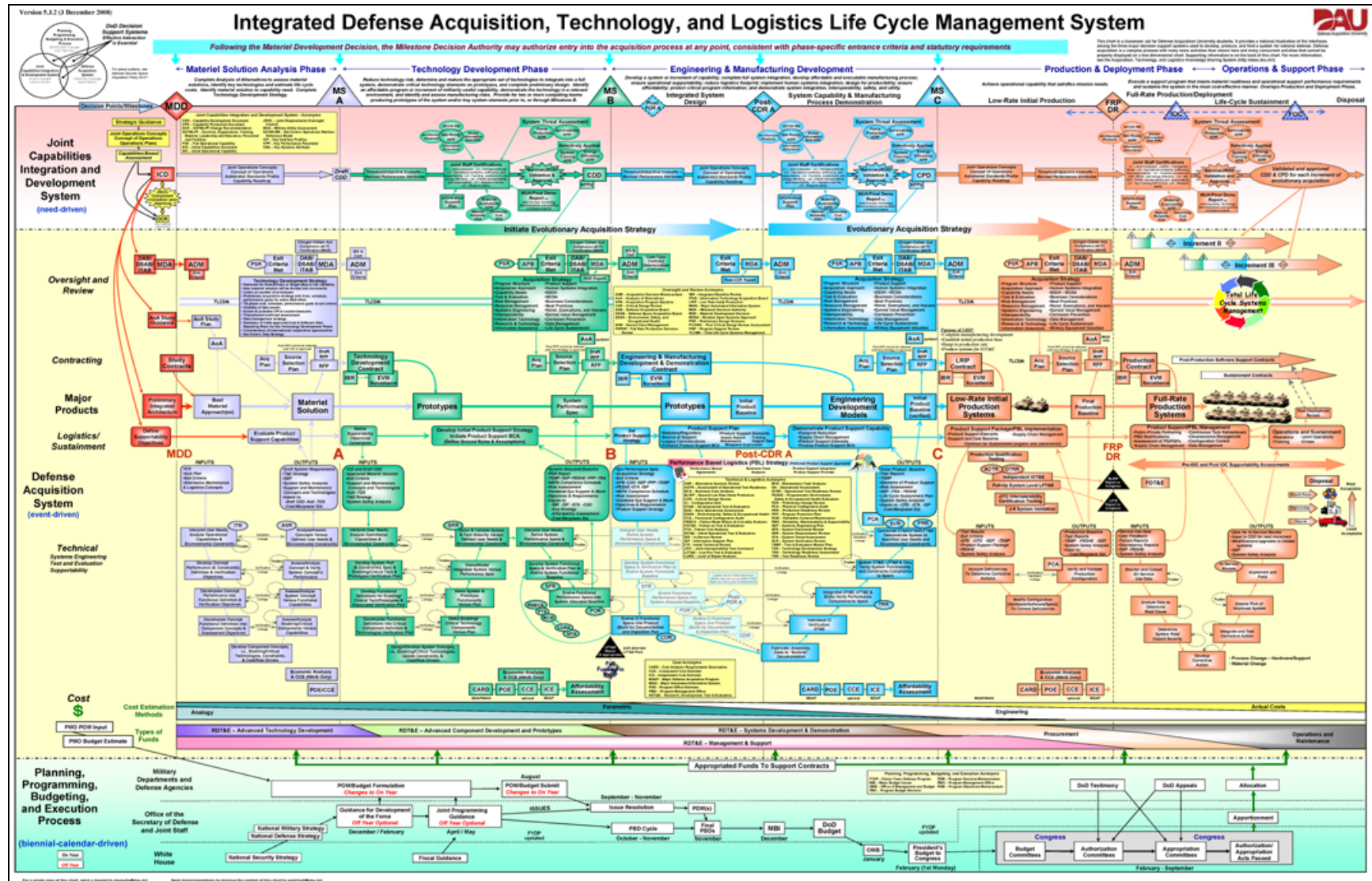
Key provisions in the act include a prohibition on future contracts for the use of new Lead System Integrators for major systems⁶⁷ (Section 802); a requirement that the Secretary of Defense (as part of the Strategic Human Capital Plan for 2008) include a section focused on the military and civilian acquisition workforce (Section 851); the establishment of a Defense Acquisition Workforce Development Fund to be used for recruitment, training, and retention of acquisition personnel (Section 852); the establishment of regulations for private security contractors (Section 861); the establishment of a Defense Materiel Readiness Board (Section 871); and the authority of the Secretary of Defense to designate critical readiness shortfalls (Section 872). Additionally, Title IX of the bill contains four significant mandates that relate to acquisitions: the designation of the Deputy Secretary of Defense as DOD's Chief Management Official and creation of an Under Secretary of Defense for Management (Section 902); the removal of the private sector service requirement for an individual appointed to be the USD(AT&L) (Section 903); the appointment of three-star military deputies to each military service's acquisition executive (Section 905); and adding the USD(AT&L) and the Director of Program Analysis and Evaluation as advisors to the JROC (Section 942).

FY2007 John Warner National Defense Authorization Act (H.R. 5122/P.L. 109-364)

The FY2007 John Warner Defense Authorization Act was organized in a nearly identical way to the FY2006 Defense Authorization Act. The act's section on Acquisition Policy, Acquisition Management, and Related Matters was subdivided into five subtitles; Subtitle A, Provisions Relating to Major Defense Acquisition Programs; Subtitle B, Acquisition Policy and

⁶⁷ For a brief discussion on the role of the Lead System Integrator, see CRS Report RS22631, *Defense Acquisition: Use of Lead System Integrators (LSIs)—Background, Oversight Issues, and Options for Congress*, by Valerie Bailey Grasso.

Management; Subtitle C, Amendments to General Contracting Authorities, Procedures, and Limitations; Subtitle D, United States Defense Industrial Base Provisions; and subtitle E, Other Matters. Each subtitle included a number of sections that addressed a variety of topics within each subtitle. Some of the most significant mandates included a new requirement for the department to update Congress biannually on the implementation of acquisition reform in the department (Section 804), the establishment of a preliminary trial program on time-certain development in acquisition of major weapon systems (Section 812), a requirement for the Milestone Decision Authority (MDA) of a Major Defense Acquisition Program (MDAP) to select the contract type used for development programs and document the rationale for that decision (Section 818), the establishment of a Strategic Materials Protection Board (Section 843) and the development of a strategy to enhance DOD Program Managers (PMs) in developing and carrying out Defense Acquisition programs (Section 853).



Source: Defense Acquisition University

Appendix B. Evolutionary History of the Defense Acquisition Structure Prior to Goldwater-Nichols

The evolution of the defense acquisition structure can be generally categorized into three distinct periods; the Revolutionary War to World War II, World War II to The Goldwater-Nichols Act and The Goldwater-Nichols Act to the present. While each period experienced challenges unique to their times, each also exhibited some characteristics that one are arguably similar in varying degrees and are useful in consideration of defense acquisition issues today. The first two periods are discussed below while the third is discussed in the main body of this report.

Revolutionary War to World War II

The era prior to WWII was one of infancy for the defense acquisition structure. While there was little to distinguish the challenges of the structure with those of federal government acquisition overall, the structure's subsequent evolutionary eras would bring about significant change.

In comparison to the other two eras in the evolution of the defense acquisition structure, there is relatively little documented analysis or examination of the structure during this time period. Such limited information appears to have been due to four principal reasons; first was a political environment unfavorable to focused analysis of defense acquisition evidenced by:

strong antimilitary sentiments (that) dominated public attitudes from the time of independence until Pearl Harbor (and) Americans focus(ing) on the military's technical skills, producing an overemphasis on engineering and science....⁶⁸

Second, "(f)or most of our history prior to 1940, the federal budget was balanced, except in years of war or economic recession."⁶⁹ Third, and possibly as an acknowledgment of the shortcomings in engineering and science:

Until World War II, weapons acquisition in the United States was more a political than a military problem. Shielded from large external threats, the country had no pressing need for sophisticated weapons; with few exceptions it was content to let European militaries take the lead in developing and fielding new weaponry.⁷⁰

The combination of the environmental characteristics described above generally gave the public (and therefore Congress) little reason to devote attention to the acquisition structure. However, that inviolate mix did not completely stifle Congressional action. Despite such an environment:

Legislators worried, on the one hand, that private industrialists would rob the federal treasury by charging high prices for shoddy weapons. Yet they sought, on the other, that the

⁶⁸ Locher III, James R. *Victory On The Potomac: The Goldwater-Nichols Act Unifies the Pentagon*. Texas A&M University Press. 2002, p. 16.

⁶⁹ Cogan, John F. "Federal Budget". *The Concise Encyclopedia of Economics*. Indianapolis: Liberty Fund, Inc., ed. David R. Henderson, 2002, at <http://www.econlib.org/LIBRARY/Enc/FederalBudget.html>.

⁷⁰ McNaugher, Thomas L. "Weapons Procurement: The Futility of Reform". *International Security*. Volume 12, No. 2 (Autumn 1987), p. 67.

industrialists in their own states and districts got their fair share, or more, of the military contracts there were to be won.⁷¹

Congress appeared to have been aware of issues relating to such a basic conflict, but taking significant action appeared to require a significant catalyst, usually war or national economic distress. In 1809, Congress first called for competition in government contracting. In 1861 the first commission to study defense acquisition fraud was formed (which was followed by numerous related commissions through the early 1900s); and the 1930s saw Congress focus intensely on the concept of government procurement for socioeconomic benefit.

World War II to the Goldwater-Nichols Act

Nearly every factor influencing and shaping the defense acquisition environment changed just after WWII. Not only were the nation's antimilitary sentiments reversed because of the attack on Pearl Harbor,⁷² but the existence of and potential for external threats to the nation became cemented. Additionally, the emergence of the Cold War presented the United States with a persistent, international security threat. "(T)he 'real' enemy was always the spread of communism beyond the Soviet periphery. Likewise, weapons systems would now be developed almost exclusively against a Soviet 'threat' counterpart."⁷³ Not only did the United States have a persistent, international enemy, but the enemy's characteristics forced weapons system development to follow "(t)he perceived Cold War imperative to attain qualitative superiority ensur[ing] that state-of-the-art technological advances would be applied rapidly to weapons systems capabilities"⁷⁴ in contrast with the previous defense acquisition landscape, even "in 1947...(where) the emphasis was on simplicity, reliability and producibility."⁷⁵

Although just before this era "(d)eficits returned...and remained for the rest of the decade—due to the Great Depression and the spending associated with President Roosevelt's New Deal," it was "World War II (that) forced the Nation to spend unprecedented amounts on defense and to incur corresponding unprecedented deficits."⁷⁶

Now, not only was the American public intensely interested in defense activities because of the Soviet threat but it also became interested in how the nation's resources were being applied - especially in the Defense sector of the economy. In fact, one scholar notes regarding the resolution of budget deficits is "(h)ow much should we spend on national defense versus domestic programs?"⁷⁷ The "guns vs. butter" debate has been a significant political topic since the nation was founded and this very debate arguably led to the beginning of the end of the Reagan Administration's increases in defense spending as

⁷¹ McNaugher, p. 67.

⁷² Locher notes that the antimilitary attitudes of the nation ended with the Pearl Harbor attack (pages 16 and 18).

⁷³ Reeves, p. 10.

⁷⁴ Bair, p. 5.

⁷⁵ Przemieniecki, J.S. *Acquisition of Defense Systems*. American Institute of Aeronautics and Astronautics. 1993, p. 13.

⁷⁶ See <http://www.whitehouse.gov/omb/budget/fy2002/guide04.html>.

⁷⁷ Kettl, Donald F. *Public Budgeting In Its Institutional and Historical Context*. 1992, pp. 38-39.

[b]y the mid-1980s...Congress stopped the buildup. With the budget deficit soaring and with important domestic needs going unmet, members of Congress argued that the nation could no longer afford the Reagan administration's ambitious plans.⁷⁸

One final contributing factor to the defense acquisition environment was the establishment and maintenance of a permanent domestic defense industrial base. However for this establishment to occur, there had to be a market for its products as a catalyst; this market was born when

the comparatively small and unsophisticated U.S. peacetime 'militia' envisioned by the Federalists and the U.S. Constitution was becoming a permanent, large peacetime force. Supporting this force was an even larger industry dedicated to developing and producing sophisticated, technologically superior weapons. These developments began the hothouse environment of military research and development that produced the international arms race, military-industrial complexes here and abroad, and the expansion of military interests into new realms such as computers, communications, spaceflight, microelectronics, astrophysics and a host of other fields.⁷⁹

In sum, a number of factors have contributed to defense acquisitions becoming a significant issue in the political landscape of the nation. Acquisition programs and practices became more complex, more costly, and more prominent during WWII than at any time in the nation's history. President Eisenhower recognized this development relatively early on and "warned of a military-industrial complex that would demand a huge share of America's wealth to perpetuate its power."⁸⁰

The environmental factors discussed above, in combination with other factors such as the advent of joint military operations and organizational change within the military, thrust the defense acquisition structure into a greater role in national debate. The results of the defense acquisition structure appear to have served as a springboard for a characteristic of this era that has perpetuated into defense acquisition today: the use of commissions, studies, or panels to address the character of the defense acquisition structure.

Author Contact Information

Moshe Schwartz
Specialist in Defense Acquisition
mschwartz@crs.loc.gov, 7-1463

⁷⁸ Kettl, p. 42.

⁷⁹ Reeves, p. 11.

⁸⁰ Kettl, p. 39.