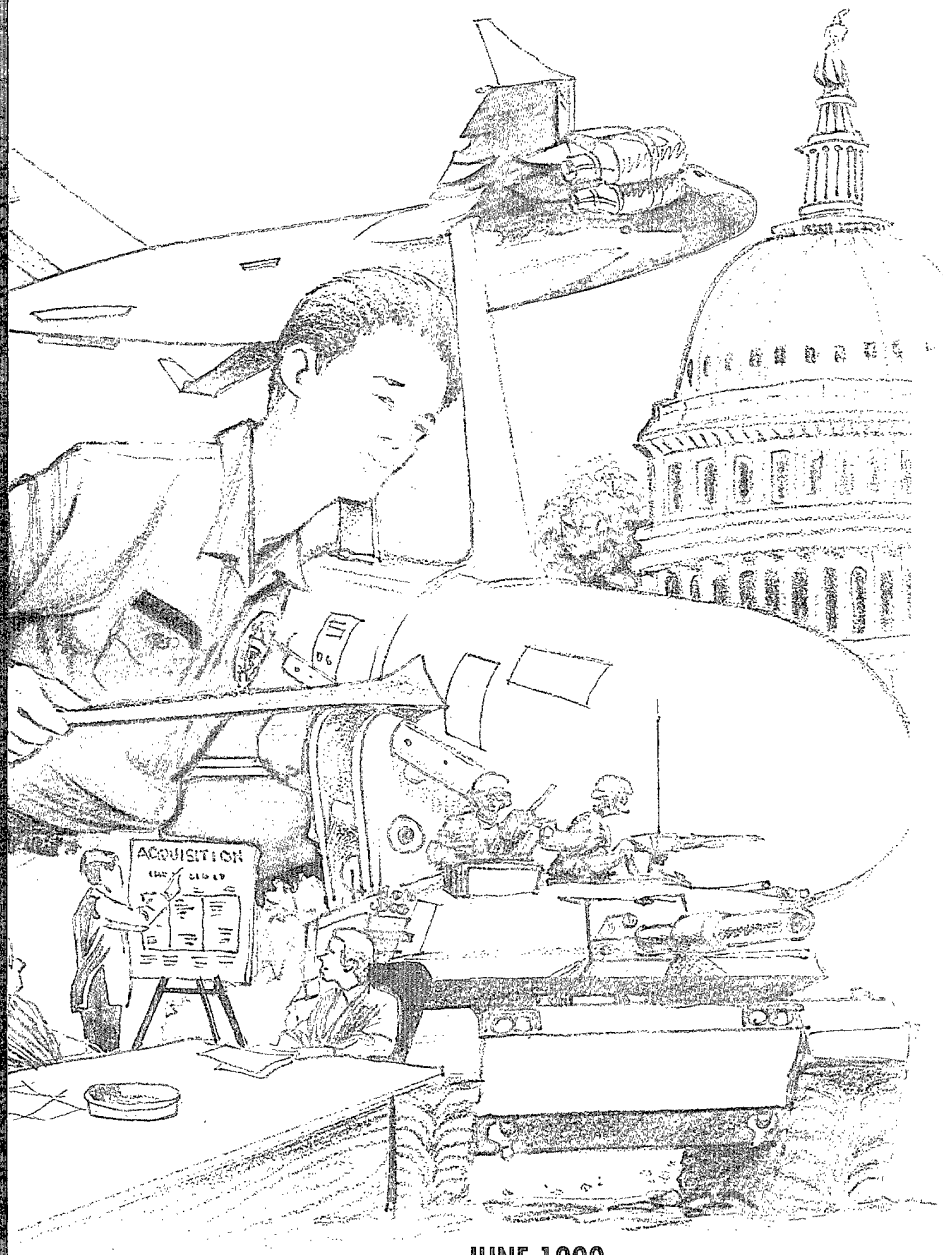
INTRODUCTION TO DEFENSE ACQUISITION MANAGEMENT



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PREFACE

This is the fourth edition of *Introduction to Defense Acquisition Management* and supersedes all other editions. This edition provides an update of the statutory and regulatory framework governing Defense systems acquisition as well as commentary on emerging trends and initiatives such as the Revolution in Military Affairs, the Revolution in Business Affairs, DoD's renewed emphasis on the Total Ownership Cost of systems, open systems acquisition, and evolving interoperability policy.

This pamphlet is designed to be both a comprehensive introduction to the world of systems acquisition management for the newcomer, and a refresher for the practitioner who has been away from the business for a few years. It focuses on Department of Defense-wide management policies and procedures, not on the details of any specific defense system.

This pamphlet is based on numerous source documents. For the reader who wishes to dig deeper into this complex area, a list of worldwide web Internet sites is provided after the last chapter.

We encourage your suggestions, comments, and inputs. A postage-paid Customer Feedback form is provided at the back of this Handbook for your convenience. Please take a few minutes to fill it out and help us improve our publication.

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1

BASICS

An understanding of defense acquisition begins with the following definition.

> *The defense acquisition system is a single uniform system whereby all equipment, facilities, and services are planned, developed, acquired, maintained, and disposed of by the Department of Defense (DoD). The system includes policies and practices that govern acquisition: identifying and prioritizing resource requirements and resources, directing and controlling the process, contracting, and reporting to Congress.*

The defense acquisition system provides the framework for the acquisition of weapons, information technology (IT) systems and other items used by DoD to meet threats to national security.

A *weapon system* is an item that can be used directly by the armed forces to carry out combat missions.

IT systems include both National Security Systems (NSS) and Automated Information Systems (AIS). NSSs are used for intelligence and cryptologic activities and command and control of military forces, or are integral to a weapons system or critical to the direct fulfillment of a military or intelligence mission. AISs are usually associated with the performance of routine administrative and business tasks such as payroll and accounting functions.

Acquisition includes research, design, development, test and evaluation, production, procurement, and operations and

support. As used herein, the term "defense acquisition" generally applies only to weapons and IT systems processes, procedures, and end products. The word procurement, which is the act of buying goods and services for the Government, is often (and mistakenly) considered synonymous with acquisition; it is instead but one of the many functions performed as part of the acquisition process. For example, non-weapon and non-IT items required by DoD, such as passenger vehicles, office supplies, and waste removal are "procured," but are not subject to the full range of functions inherent in the acquisition process of weapons and IT systems, and thus are not described in this pamphlet.

Management includes a set of tasks required to accomplish a specified project. One way of looking at systems acquisition management in DoD is by looking at some individual elements that comprise each of these terms as noted below:

System	Acquisition	Management
• Hardware • Software • Logistic Support – Manuals – Facilities – Personnel – Training – Spares	• Determine Need • Design and Develop • Test • Produce • Field • Support • Improve or Replace • Dispose of	• Plan • Organize • Staff • Control • Lead

The Role of Congress, the Executive Branch, and Industry in Defense Acquisition

The three principal participants (players) in defense acquisition include the Executive Branch of the Federal Government, the Congress, and Industry. Each element plays a significant role and brings a unique perspective to the process. Each of these

participants, in terms of perspectives, responsibilities, and objectives, is discussed briefly below.

Executive Branch

Principal players within the Executive Branch include the President, the DoD, the Office of Management and Budget, the Department of State, and the National Security Council.

Perspectives

- Formulate, direct, & execute national security policy
- Want to be reelected
- Patriotic
- Personal ambition

Responsibilities

- Sign legislation into law (President)
- Contract with Industry
- Exercise command and control of unified commands through CJCS*
- Negotiate with Congress
- USD(A&T)** makes decisions on major defense acquisition programs
- Issue directives/regulations

Objectives

- Satisfy national security needs and objectives
- Maintain a balanced force structure
- Field weapon systems to defeat the threat
- Prevent undue Congressional interest/scrutiny
- Eliminate fraud, waste, and abuse in acquisition

* Chairman, Joint Chiefs of Staff
** Under Secretary of Defense (Acquisition and Technology)

Legislative Branch

The Legislative Branch (Congress) includes: the two authorizing committees, the Senate Armed Services Committee and the House Armed Services Committee; the two appropriations committees, the House Appropriations Committee and Senate Appropriations Committee; the Senate and House Budget Committees; various committees having legislative oversight of defense activities; individual members of Congress; the Congressional Budget Office; and the General Accounting Office.

Perspectives

- Represent interests of their constituents
- Two-party system
- Checks and balances
- Personal ambition
- Want to be reelected
- Patriotic
- Concerned for world peace

Responsibilities

- Debate/vote/pass legislation
- Conduct hearings
- Set ceilings (manpower and equipment)
- Establish oversight committees
- Raise taxes/provide budget

Objectives

- Balance defense and social needs
- Distribute "dollars" by district/state
- Control public debt
- Maximize competition
- Control industry profits
- Control fraud, waste, abuse, and mismanagement

Industry

Industry (contractors) includes large and small organizations (both U.S. and foreign) providing goods and services to DoD.

Perspectives

- Represent interests of the owners or stockholders
- Capitalism
- Patriotism

Responsibilities

- Respond to solicitations
- Propose solutions
- Conduct independent R&D*
- Design systems
- Produce systems
- Upgrade/support systems

Objectives

- Profit and growth
- Cash flow
- Market share
- Stability
- Technological achievement

*Research and Development

Numerous external factors impact on and help shape every defense acquisition program, creating an environment over which no single person has complete control. These factors include, policies, decisions, regulations, reactions, and emergencies. Other factors include Political Action Committees, the media, public sentiment and emotions, world opinion, and the ever present (and changing) threat to national security. Often these factors work at opposite purposes. Understanding and

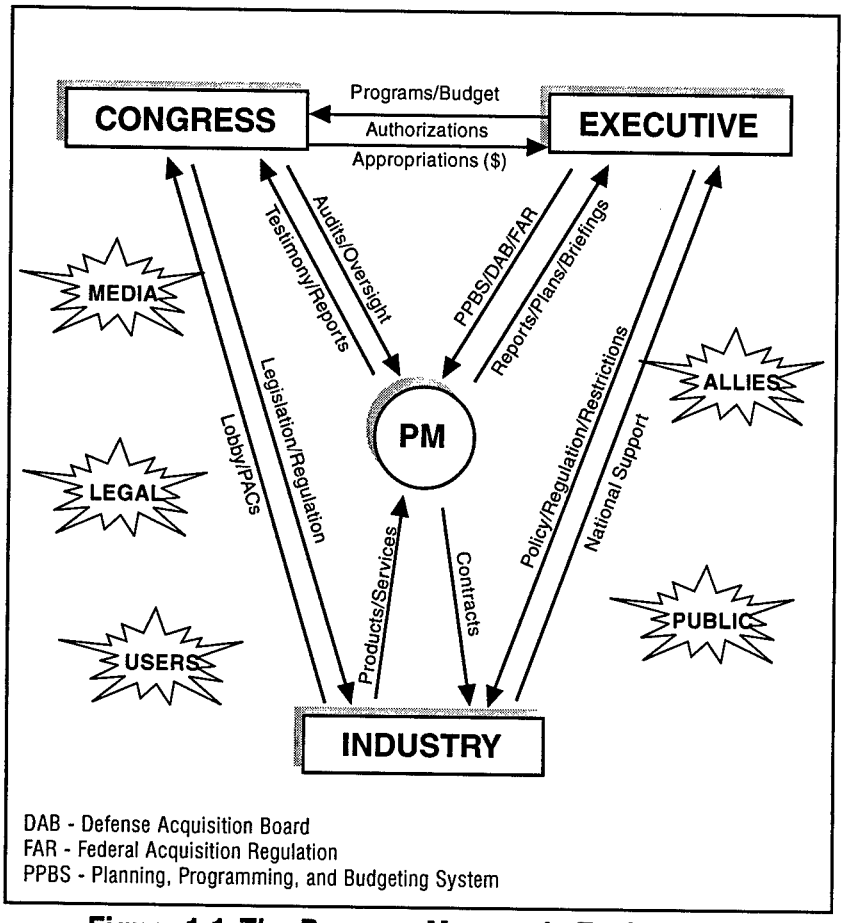

Figure 1-1. The Program Manager's Environment

dealing with the environment they create is one of the greatest challenges for defense acquisition managers. Figure 1-1 illustrates some of the interrelationships among these key players. This figure also shows the Program Manager (PM) in the middle of a complex triangle of relationships, faced with the challenging task of coordinating among the principal participants and managing a defense acquisition program in the midst of many significant, diverse, and often competing, interests. Chapter 2 has a more detailed discussion of the PM's role in defense systems acquisition.

Successful System Acquisition Program

A successful system acquisition program places a capable and supportable system in the hands of a user when and where it is needed, and does so within the bounds of affordability. The ideal outcome necessary for successful long-term relationships among the participants in defense acquisition is "Win-Win," wherein each participant gains something of value for participating. Depending on your perspective, "success" can take many different forms.

For the *PM*, success means a system that is delivered on time, within cost, and meets the user's requirements.

For the *Office of the Secretary of Defense (OSD) staff*, success means a program that satisfies national security objectives, provides a balanced force structure, and does not attract undue Congressional scrutiny.

For *Congress*, success means a system that strikes a balance between defense and social needs, provides a fair distribution of defense dollars by state/district, and that has not generated any scandals.

For *industry*, success means a program that provides a positive cash flow and a satisfactory return on investment, and preserves the contractor's competitive position in the industry.

For the *user*, success means a system that is effective in combat and easy to operate and maintain.

To a large extent, a person's (or organization's) perspective on what constitutes a successful program depends on position. In other words, where you *stand* on "success" is largely a function of where you *sit*.

Authority For Defense Systems Acquisition

The authority for DoD to conduct systems acquisition, i.e., to develop, produce, and field weapons systems, flows from two principal sources: the Law (legal basis) and Executive Direction. Executive direction can be considered the authority of the President and executive agencies to issue orders and regulations to both promulgate and facilitate the law and to help carry out the constitutional duties of the executive branch. In some cases, Congress may specifically authorize and direct an executive branch agency to issue regulations to implement a particular law, but this is not always the case.

The Law

Statutory authority from Congress provides the legal basis for systems acquisition. Some of the most prominent laws are:

- Armed Services Procurement Act (1947), as amended, now essentially replaced by subsequent legislation
- Small Business Act (1963), as amended
- Office of Federal Procurement Policy Act (1983), as amended
- Competition in Contracting Act (1984)
- DoD Procurement Reform Act (1985)
- DoD Reorganization Act of 1986 (Goldwater-Nichols)
- Government Performance and Results Act (1993)
- Federal Acquisition Streamlining Act of 1994
- Clinger-Cohen Act of 1996
- Annual authorization and appropriations legislation, which in recent years has contained substantial new or amended statutory requirements.

Most of the provisions of the above have been codified in Title 10, United States Code (Armed Forces).

Executive Direction

Authority and guidance also emanate from the Executive Branch in the form of executive orders, national security (presidential) decision directives, and other agency regulations. Examples include:

- *Executive Order 12352* (1982) which directed procurement reforms and establishment of the Federal Acquisition Regulation.
- *Federal Acquisition Regulation (FAR)* (1984) which provided uniform policies and procedures for the procurement of all goods and services by executive agencies of the Federal government. The DoD supplement is called the DFARS (Department of Defense Federal Acquisition Regulation Supplement).
- *National Security Decision Directive 219* (1986) which directed implementation of recommendations of the President's Blue Ribbon (Packard) Commission on Defense Management.
- *Executive Order 13011* (1996) which implemented the provisions of the Information Technology Management Reform Act.
- *OMB Circular A-11 (1997)* which describes the process for preparation and submission of budget estimates, strategic plans and annual performance plans, and the planning, budgeting and acquisition of capital assets for all executive departments.

The Acquisition Environment

Revolution in Military Affairs (RMA)

Many defense analysts believe the conduct of warfare is entering a period of fundamental change, literally, a "revolution in military affairs," driven by advances in information technology and precision-guided weapons. Past experience suggests that RMAs are not produced solely by rapid technological advancements, but also require changes to prevailing operational concepts, doctrine and force structure to fully harness the technology in a manner to dominate the battlefield. Coupled with the rise of new threats since the end of the Cold War (international drug cartels, terrorism, regional warfare, chemical/biological agents, availability of missile technology, etc.), the United States has begun the process of transforming its forces to harness the RMA both to meet these new threats and to ensure it remains dominant on any 21st Century battlefield.

Revolution in Business Affairs (RBA)

The RBA is intended to fundamentally change DoD's business practices and reengineer its infrastructure in support of the warfighter. This "revolution" encompasses three broad streams of activity: (1) Expanding and fully implementing acquisition reform (see Chapter 3); (2) Working with the General Accounting Office and the Defense Contract Auditing Agency to do away with specialized government auditing and accounting procedures to facilitate civil-military integration and expand the number of companies willing to do business with DoD; and (3) Dramatically reducing the size and cost of the defense support infrastructure by applying commercial practices, privatizing and conducting public-private competitions for those support areas that are not of an inherently governmental nature.

Joint Vision 2010

Joint Vision 2010 (JV 2010) is the Chairman of the Joint Chiefs of Staff's conceptual blueprint for future military operations. JV 2010 provides a foundation for broad support of the RMA through the creation and exploitation of information superiority. Central to the Chairman's vision are four new operational concepts: dominant maneuver, precision engagement, focused logistics, and full-dimensional protection. Together, these four concepts provide to America's warfighters the capability to dominate an opponent across the full-range of military operations—or "full spectrum dominance." Achieving full spectrum dominance means building an integrated, complex set of systems, especially a C4ISR architecture (see Chapter 5). The research, development, and acquisition of future defense systems to fulfill the Chairman's vision, and the Military Service Chief's companion visions, will be a challenge for the defense acquisition system outlined herein.

2

PROGRAM MANAGEMENT IN DEFENSE ACQUISITION

Department of Defense policy calls for the systems acquisition process to be directed by a responsible manager under the concept of program management. The role of the program manager (PM)[1] is to direct the development, production, and initial deployment (as a minimum) of a system. This must be done within limits of cost, schedule, and performance, as approved by the PM's Acquisition Executive (see Chapter 5). The PM's role, then, is to be the agent of the Service or defense agency in the defense acquisition process to ensure the warfighter's modernization requirements are met efficiently and effectively in the shortest possible time.

Definition of Program Management

> *The process whereby a single leader exercises centralized authority and responsibility for planning, organizing, staffing, controlling, and leading the combined efforts of participating/assigned civilian and military personnel and organizations, for the management of a specific defense acquisition program or programs, through development, production, deployment, operations, support, and disposal.*

Program management must first take into account diverse interests and points of view. Second, it facilitates tailoring the

[1] The term "PM" is used broadly here. Some DoD components use different titles. For example, the Army uses "project" and "product" manager depending on the authorized rank of the position.

management system and techniques to the uniqueness of the program. Third, it represents integration of a complex system of differing but related functional disciplines[2] that must work together to achieve program goals.

Program Manager's Perspective

The effective PM should have the "big picture" perspective of the program, including in-depth knowledge of the interrelationships among its elements. An effective PM:

- is a leader and a manager, not primarily a task "doer,"
- understands the requirements, environmental factors, organizations, activities, constraints, risks, and motivations impacting the program,
- knows and is capable of working within the established framework, managerial systems, and processes that provide funding and other decisions for the program to proceed,
- comprehends and puts to use the basic skills of management—planning, organizing, staffing, leading, and controlling—so people and systems harmonize to produce the desired results,
- coordinates the work of defense industry contractors, consultants, in-house engineers and logisticians, contracting officers, and others, whether assigned directly to the program office or supporting it through some form of Integrated Product Team (IPT) or matrix arrangement,

[2] Functional disciplines refer to business and financial management, logistics, systems engineering, software management, test and evaluation, manufacturing management, and others.

- builds support for the program and monitors reactions and perceptions which help or impede progress,

- serves both the military needs of the user in the field, as well as the priority and funding constraints imposed by managers in the Pentagon and service/defense agency headquarters.

Why is Program Management Used in Defense Acquisition?

Program management provides a single point of contact, the PM, who is the major force for directing the system through its evolution, including design, development, production, deployment, operations and support, and disposal. The PM, while perhaps being unable to control the external environment, has management authority over business and technical aspects of a specific program. The PM has only one responsibility—managing the program—and accountability is clear. For defense acquisition programs, industry follows a process similar to that used by DoD. Often contractors will staff and operate their program office to parallel that of the military program office for whom they are performing their contractual effort.

Integrated Product and Process Development (IPPD)

IPPD is a management process that integrates all activities from the concept of a new defense system through the entire life cycle (see Chapter 7), using multidisciplinary teams, called integrated product teams (IPTs). PMs use IPPD and IPTs to the maximum extent possible.

The PM and IPTs

An IPT is composed of representatives from all appropriate functional disciplines working together with a team leader to structure and execute programs. IPTs exist at both the oversight and review levels (Overarching IPTs (OIPTs) and Working level

IPTs (WIPTs) – see Chapter 5) as well as at the program office level. The PM recommends an appropriate WIPT structure to the OIPT, and establishes a program IPT structure. The program IPTs may be structured around the major design aspects of the system under development, such as an "engine IPT," or processes like a "test IPT." Following contract award, program IPTs often include contractor participation.

The DoD has recognized the importance of IPTs as a means to aid the PM, and as a way to streamline the decision process. By working as part of cross functional teams, issues can be identified and resolved more quickly, and stakeholder involvement in the overall success of the program maximized. In this way the PM capitalizes on the strengths of all the participants in the defense acquisition process.

3

ACQUISITION REFORM

The Department of Defense vision for Acquisition Reform is:

> *"To be recognized as the world's smartest, most efficient, and most responsive buyer of best-value goods and services that meet our warfighters' needs from a globally competitive national industrial base."*

This vision recognizes the necessity of acquiring systems better, faster, and cheaper to successfully compete and win both economically and militarily on a global basis in the post-Cold War era.

Background

There have been many attempts to reform Government over the years. However, in the early 1990s it became clear that the rapidly changing threat environment, reduced resources, and changes in technology development required permanent changes in the way DoD acquired defense systems.

Perhaps the most notable change in defense systems acquisition was caused by the collapse of the Soviet Union. This major world event impacted national objectives, politics, foreign aid, treaties, budget, and alliances. These changes have altered DoD's mission. The specter of strategic thermonuclear war lessened while the probability of regional conflicts (Desert Storm) and policing actions (Bosnia) increased. Domestic terrorism, information warfare, and narcotics control are becoming increasingly troublesome threats to national security,

and DoD is playing an ever-increasing role in resolving these issues.

As budgets were scaled back, decision makers were forced to prioritize. In spite of continuing trouble in hot spots around the world, the collapse of the Soviet Union prompted decreasing DoD budgets and personnel downsizing. In 1999 the White House and the Congress committed to increasing the DoD budget to enhance modernization; still, it is likely that fewer new acquisition programs will be initiated in the immediate future. DoD has typically relied upon expensive technology-based programs as a key advantage. Lately, DoD has had to change its focus to include an increased emphasis on affordability of technology, interoperability of systems, the pursuit of a stronger industrial base, and a reduced role in the development of new technologies and innovations.

The defense industrial base has been going through a metamorphosis. There is a major downsizing in the contractor world similar to what is being seen in DoD. Weaker competitors are either being merged or they drop out of the market. The remaining large contractors are cash rich and positioning themselves with other defense contractors to compete for remaining defense contracts. For example, in 1982 there were ten major US producers of fixed-wing military aircraft. By 1998, there were only three: Boeing, Lockheed-Martin, and Northrop-Grumman. As a result of this reduced industrial base, DoD is working to bring about greater civilian/military industrial integration.

Foundations for Acquisition Reform

Given the changes in the threat and the reduction in resources available to provide systems for national defense, DoD could not effectively meet the challenge by continuing to conduct business as usual. Also, given the new security environment and technological advances in the commercial marketplace,

DoD needed access to advanced technology before it was bought by potential and real adversaries. Therefore, DoD had to fundamentally change the way it acquired systems—to find more efficient and effective ways to acquire goods and services faster, better, and cheaper. This led to the following major "events" that provided the foundation for acquisition reform within DoD:

- **National Partnership for Reinventing Government (NPR) (formerly the National Performance Review, 1993).** This is the Administration's initiative to reform the way the Federal Government works. Its mission is to create a government that "works better, costs less, and gets results Americans care about." DoD is an NPR "High Impact Agency" for acquisition reform.

- **Section 800 Panel Report (1993).** This report was the result of Congressional direction to the Under Secretary of Defense (Acquisition & Technology) (USD(A&T)) to review all DoD procurement laws "with a view toward streamlining the defense acquisition process." It recommended over 400 changes to existing laws and regulations. The report was intended to not only implement reforms recommended in several previous studies but also provide a framework for continuous improvements in Pentagon acquisition practices.

- **Secretary of Defense Perry's "Acquisition Reform—A Mandate for Change" (February 1994).** This paper lists the key reasons why change in acquisition is imperative, and it outlines methods to make the most impact through change. This led to the formal beginning of regulatory reform in DoD.

With the foundation laid, it was decided that long-term emphasis on the need for changing the way we do business in DoD was essential if we were to maintain our position as the preeminent

military force in the world. Many initiatives have been implemented to institutionalize new attitudes and affect the necessary changes in cultural behavior. These initiatives have been derived from three sources:

- **Federal Acquisition Streamlining Act (FASA) 1994.** Major legislation concerned with procurement reform, which implemented many of the recommendations of the Section 800 Panel Report. FASA repealed or substantially modified over 225 provisions of law primarily dealing with contracting and procurement matters. Some notable features that led to acquisition reform initiatives include emphasis on the use of commercial versus military specifications, encouragement of electronic commerce, and requirements to use past performance when evaluating contractor proposals.

- **Process Action Teams (PATs) 1994-1996.** The Secretary of Defense and the USD(A&T) established several teams of "practitioners" from the services and agencies to determine how best to achieve policy changes in electronic commerce/ electronic data interchange, military specifications and standards, procurement, contract administration services, systems acquisition oversight and review, and automated acquisition information.

- **Regulatory Changes.** Provisions of FASA and recommendations of the various PATs were implemented in changes to the Federal Acquisition Regulation, the Defense FAR Supplement, DoD Directive 5000.1, and DoD Regulation 5000.2-R. (The FAR was mentioned in Chapter 1; DoDD 5000.1 and DoD 5000.2-R will be covered in Chapter 4).

Offices have been established throughout DoD to support acquisition reform efforts, including the Deputy Under Secretary of Defense for Acquisition Reform in the Office of the Secretary

of Defense. In addition, designated pilot programs have been given statutory and regulatory relief to "test drive" new ideas and processes.

Sustaining Acquisition Reform

Now the emphasis is on *sustaining* the acquisition reform momentum that has been built up since late 1993. Sustaining the momentum provides long-term emphasis necessary to ensure that we make permanent changes to our acquisition culture. To provide continued legislative momentum for cultural change, two pieces of legislation were passed in 1996:

- **The Federal Acquisition Reform Act (FARA) (1996).** A follow-up to FASA, FARA was passed in 1996 as Division D of the FY 1996 National Defense Authorization Act to cover some of the Section 800 Panel acquisition reform recommendations that were not covered in FASA. Some of the more interesting issues covered include exceptions for commercial item acquisitions to the Truth in Negotiations Act and Cost Accounting Standards.

- **Information Technology Management Reform Act (ITMRA) (1996).** ITMRA was enacted as Division E of the FY 1996 National Defense Authorization Act. Later, FARA and ITMRA together were designated the "Clinger-Cohen" Act in honor of their Congressional sponsors. The intent of ITMRA is to require greater accountability for system improvements achieved through information technology (IT). Among other things, ITMRA sought to streamline both protest and acquisition procedures for IT systems by identifying the General Accounting Office as the single agency for protests; and by repealing the Brooks Act, which since the 1960s imposed cumbersome regulations on purchasing computers (originally targeted at mainframes). It

also addressed the issue of rapidly changing technology by requiring modular contracting, with increments delivered within 18 months of contract award.

To realize the vision of Acquisition Reform, the DoD has taken on the following missions:

- Adapt the best practices of world class customers and suppliers.
- Continuously improve the acquisition process to ensure it remains flexible, agile, and, to the maximum extent possible, based on best practices.
- Provide incentives for acquisition personnel to innovate and manage risk rather than avoid it.
- Take maximum advantage of emerging technologies that enable "business process reengineering" (BPR). (BPR is the reengineering of an organization by examining existing processes, then revising and revamping them to achieve increased performance or efficiency.)

Implementing initiatives support the vision and mission of acquisition reform. Some of the more significant initiatives can be grouped under the headings of management processes, contract processes, and adopting commercial practices. Keep in mind that most of the initiatives could fall into more than one category. They all must interact and work together to support the objectives of acquiring defense systems better, faster, and cheaper. The following are not all-inclusive, but capture the essence of the major thrusts of acquisition reform within DoD.

Integrated Product Teams (IPTs) and Integrated Product and Process Development (IPPD) are two closely intertwined initiatives that are replacing traditionally adversarial relationships among key players (users, acquirers, testers, funds managers, contractors, and other stakeholders) with cooperation

and teamwork. Use of multi-functional IPTs and IPPD has been institutionalized across the DoD acquisition organizations to facilitate cooperation and teamwork and to improve product quality and supportability.

Cost as an Independent Variable (CAIV) is used to develop strategies for acquiring and operating affordable systems by setting aggressive, achievable cost objectives and managing achievement of these objectives. Through participation on cost performance IPTs, key stakeholders (users, industry, etc.) help set and achieve the CAIV objectives by identifying potential tradeoffs early in the acquisition process.

Streamlined Procedures. Streamlining internal procedures reduces cycle times and cuts administrative costs. In March 1996, two key acquisition policy documents were rewritten: DoDD 5000.1, Defense Acquisition, which contains policies and principles for all DoD acquisition programs; and DoD 5000.2-R, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information Systems (MAISs). This eliminated or made discretionary hundreds of pages of requirements. Revision of DoDD 5000.1 and DoD 5000.2-R was done in conjunction with the creation of the Defense Acquisition Deskbook.

Defense Acquisition Deskbook (http://www.deskbook.osd.mil/). The Deskbook is an electronic repository of both discretionary and mandatory acquisition information, including best practices. It has an extensive Reference Library with quick access to many acquisition related documents, such as the FAR, DoD Directives and Instructions, CJCSI 3107.01 (see Chapter 6), and sections of the United States Code. It also has an Information Structure with a set of comprehensive information topics on numerous acquisition-related areas. The Deskbook is on the leading edge of the move toward automation of acquisition information, and is updated on a quarterly basis.

Simulation Based Acquisition (SBA) integrates and maximizes the use of evolving modeling and simulation technology across acquisition functions, life cycle phases and programs. The goals are to reduce the time, resources, and risk associated with the systems acquisition process while improving product quality, military utility, and supportability.

Past Performance of Contractors. DoD is expanding in the area of collection and use of past performance data in response to a Process Action Team report indicating that this is one of the best ways to improve the quality of purchased goods and services. Collection of data is being automated and standardized across the Department. Evaluation of past performance is being used as a significant factor during source selections.

Best Value Contracting. DoD seeks to award contracts based on the best overall value. This means that DoD considers all relevant factors, such as cost, performance, quality, and schedule, and makes potential tradeoffs between cost and non-cost factors, rather than just buying from the lowest cost, technically acceptable offeror.

Protest Reform. It was discovered that some losing offerors were protesting source selection results simply to get information on why they lost. Communication with industry is now more open, providing information earlier in the process.

Single Process Initiative (SPI) allows a single process for both commercial and military products. To ensure existing contracts reap the benefits of SPI, block changes of multiple contracts have been implemented at many facilities. Removing government unique requirements makes it easier and cheaper for contractors to produce our military products by using existing commercial processes and production lines.

Open Systems. Designing open systems and specifying interface standards enhances interoperability, both among the services

and with our Allies. Applying widely used interface standards in weapons systems will enable multiple sources of supply and technology insertion and allow for upgrading through spares.

Commercial Items and Practices. Maximizing the use of commercial items allows us to take advantage of the innovation offered by the commercial marketplace and ensures that we have access to the latest technology. Using commercial practices allows us access to a broader vendor base. DoD is also encouraging vendors that make up the industrial base to move to commercial practices, which will enhance their global competitiveness. In the future, if DoD is to develop, field, and sustain superior materiel, we must rely more on the same industrial base that builds commercial products. DoD's goal is to establish a partnership with industry to create advanced products and systems with common technological bases, which allow production of low-volume defense-unique items on the same lines with high-volume commercial items.

Specifications and Standards Reform. SECDEF William Perry published a policy memo on 29 June 1994, with a hierarchy of types of specifications and standards to be considered for systems acquisition contracts. First choice was the use of performance specifications. Design specific military specifications and standards were authorized only as a last resort, and their use required a waiver. This was a major policy reversal.

Advanced Concept Technology Demonstrations (ACTDs). Recently, it has been recognized that there are opportunities to try out technology directly with the warfighters, allowing them to experiment on how this new technology might be effectively used. ACTDs, based on mature or emerging technology, and jointly planned by warfighters and technologists allow operational forces to experiment in the field with new technology in order to evaluate potential changes to doctrine, operational concepts, tactics, modernization plans and training. ACTDs have three motivations:

- To have the user evaluate the military utility of a technology concept before committing to acquisition,
- To develop corresponding concepts of operation and doctrine that make best use of the new technology, and
- To provide residual operational capability to the operating forces for in-depth, sustained evaluation.

Following a successful ACTD, if large numbers of the system concept demonstrated are required, the system will enter the acquisition process at whatever stage good judgment dictates.

There are many more initiatives in place, as well as new ones being "tested" throughout the Department. Remember that all the initiatives exist to help us acquire defense systems better, faster, and cheaper—essential if we are to maintain our position as the world's premier fighting force. The cultural shifts in the acquisition process brought on by the three drivers of acquisition reform (threat, resources and technology) may be characterized in the following chart:

Goals of Systems Acquisition in the past included:	**Today the emphasis is on shifting toward:**
Many new systems	Fewer new systems, modified legacy systems
Focus on nuclear warfare	Conventional warfare
Technology-driven systems	Affordability driven systems
Service-specific programs	Joint programs (interoperability)
Military-unique technology	Dual use technology/open system
Technology development	Technology insertion

4

DEPARTMENT OF DEFENSE ACQUISITION POLICY

Acquisition Categories (ACATs)

For management purposes, all defense acquisition programs can be put into one of the following acquisition categories (ACATs), principally based on their dollar value and milestone decision authority (MDA) as shown in Figure 4-1 below. (The chain of authority and organizational players affecting various ACATs are discussed in Chapter 5).

Major Defense Acq Pgms	ACAT 1D: ACAT IC:	• DAB review • Designated by DAE • Decision by DAE • Component review • Designated by DAE • Decision by Svc Sec/CAE	$355M RDT&E or $2.135B Procurement (FY96 Constant $)
Major AIS Acq Pgms	ACAT IAM: ACAT IAC:	• ITOPT review • Designated by ASD(C^3I) • Decison by ASD (C^3I) • Component review • Designated by ASD(C^3I) • Decision made by Component Chief Information Officer	$360M Life Cycle Cost or $120M Total Prog. Cost or $30M Prog. Cost in any single year (FY96 Constant $)
Major Systems	ACAT II*:	• Does not meet ACAT I Criteria • Designated by Svc Sec/CAE • Decision by Svc Sec/CAE	$135M RDT&E or $640M Procurement (FY96 Constant $)
All Other Systems (except for Army, Navy, USMC)	ACAT III:	• Does not meet ACAT I, IA or II Criteria • Designated IAW Component policy • Decision at lowest appropriate level	No Fiscal Criteria
Army Navy USMC	ACAT IV:	• Not otherwise designated ACAT I, IA, II or III • Designated IAW Component policy • Navy/USMC ACAT IV/TM • Decision at lowest appropriate level	See AR 70-1 (Army) & SECVAVINST 5000.2B (Navy and Marine Corps)

* Army has an ACAT IIA category for AIS reviewed at Army CIO level

Figure 4-1. Acquisition Categories (ACATs)

Major defense acquisition programs are ACAT I programs. There are two subcategories of ACAT I programs:

- *ACAT ID*, for which the MDA is the Under Secretary of Defense (Acquisition & Technology) (USD(A&T). The "D" refers to the Defense Acquisition Board (DAB). Sponsoring service/defense agencies first review/approve ACAT ID programs. Forward movement of the program involves review by the appropriate Overarching Integrated Product Team (OIPT) and the DAB. The USD(A&T) as the Defense Acquisition Executive (DAE) makes the final decision.

- *ACAT IC*, for which the MDA is the Component Acquisition Executive (CAE). The "C" refers to Component. Each of the components has its own process for headquarters review of ACAT IC/ACAT IAC/ACAT II programs prior to a milestone decision by the CAE.

Major automated information system acquisition programs are ACAT IA programs. There are two subcategories of ACAT IA programs:

- *ACAT IAM*, for which the MDA is the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) (ASD(C^3I)). The "M" refers to the major automated information systems (AIS) reviewed by the Information Technology (IT) OIPT. First, reviews of the ACAT IAM programs are conducted by the sponsoring service/agency, and next by the IT OIPT. Final decision authority lies with the ASD(C^3I) who is the Chief Information Officer (CIO) of DoD.

- *ACAT IAC*, for which the MDA is the DoD Component CIO. The "C" refers to Component. After the appropriate headquarters review, the component CIO makes the final milestone decisions.

ACAT II programs are those programs that do not meet the criteria for an ACAT I program but do meet the criteria for a major system. The MDA for these programs is also the CAE. The management oversight and review process for these programs is similar to that of the ACAT IC programs discussed above.

ACAT III programs are those programs that do not meet the criteria for ACAT I, ACAT IA, or ACAT II programs. The MDA is designated by the CAE. Milestone decisions for these programs are typically made at the Program Executive Officer (PEO) or Systems Command (Navy and Marine Corps), Major Subordinate Command (Army), or Product or Air Logistics Center (Air Force) level. Some ACAT III programs may also be assigned to a PEO for milestone/program decisions. This category also includes nonmajor AISs.

ACAT IV programs have been retained as a designation for internal use by the Department of the Army and Department of the Navy.

Two documents guide defense acquisition:

1. DoD Directive (DoDD) 5000.1, *Defense Acquisition*, approved and signed by the Secretary of Defense (SECDEF), states policies and principles for all DoD acquisition programs and identifies the department's key acquisition officials and forums, and outlines their responsibilities.

2. DoD Regulation 5000.2-R, *Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs*, approved and signed by the Deputy SECDEF, specifies *mandatory* policies and procedures for MDAPs and MAISs and, where specifically stated, for other than MDAPs and MAISs.

DoDD 5000.1

The DoDD 5000.1 describes an *integrated management framework*, formed by DoD's three primary decision support systems: the Requirements Generation System, the Acquisition Management System, and the Planning, Programming, and Budgeting System (PPBS). This integrated management framework is depicted in Figure 4-2.

Requirements Generation, governed by Chairman of the Joint Chiefs of Staff Instruction 3170.01 (CJCSI 3170.01), is the system that results in identification of needs, i.e., warfighting deficiencies or technological opportunities. The acquisition management system, governed by the DoD 5000 Documents, provides for a streamlined management structure (based on an event-driven process) which links formal milestone decisions to demonstrated accomplishments. The PPBS, nominally governed by DoDD 7045.14 (last updated 22 May 1984),

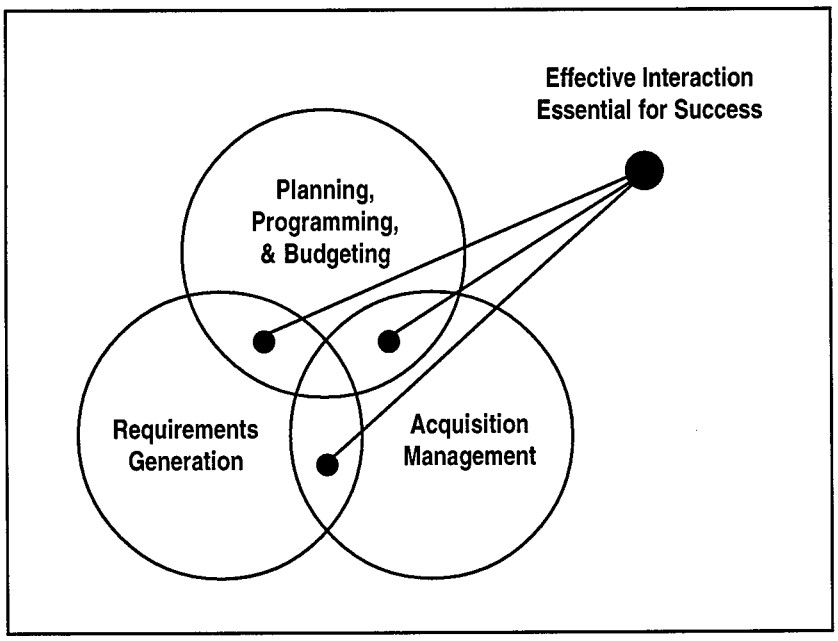

Figure 4-2. Three Major Decision Support Systems

prescribes the process for making informed resource decisions within the DoD, including decisions regarding acquisition programs. These three systems operate continuously and must interface on a regular basis to enable the DoD leadership to make informed decisions regarding the best allocation of scarce resources. This pamphlet discusses these decision support systems in Chapters 6, 7, and 8, respectively.

The DoDD 5000.1 identifies broad principles that guide *all* defense acquisitions, including major and nonmajor programs, AISs, and highly sensitive and classified programs. These policies and principles can be put into three categories:

1. *Translating operational needs into stable, affordable programs.* This entails working within the integrated management framework of the Requirements Generation System, the Acquisition Management System, and the Planning, Programming and Budgeting System, utilizing the principles of Integrated Product and Process Development (IPPD) and Integrated Product Teams (IPTs) (see Chapters 2 and 5), actively managing risk, applying the principles of Cost as an Independent Variable and managing Total Ownership Cost (see Chapter 3), using performance specifications in lieu of military specifications, and where appropriate, employing nontraditional acquisition means, such as Advanced Concept Technology Demonstrations (see Chapter 2).

2. *Acquiring Quality Products.* This means employing event based (as opposed to calendar based) acquisition strategies and approaches, observing the hierarchy of materiel alternatives (see Chapter 6), maximizing industry competition, facilitating communications with the user community, integrating modeling and simulation into the system's life cycle of activities, structuring a test program to provide necessary information to the user community and oversight officials to confirm system

performance, and reducing environmental costs over the life of the system.

3. *Organizing for Efficiency and Effectiveness.* This encompasses streamlined organizational approaches, such as the PEO structure (see Chapter 5), facilitating teamwork by employing the IPPD/IPT philosophy, tailoring acquisition programs to minimize the time needed to satisfy an identified need consistent with common sense, good business practice, and applicable laws and regulations, and establishing management objectives for cost, schedule and performance.

In addition to these three major policies and principles, DoDD 5000.1 also identifies and describes the responsibilities of key acquisition officials and key forums.

Key Officials (responsibilities are identified in Chapter 5).

Deputy Secretary of Defense
Under Secretary of Defense (Acquisition and Technology)
Under Secretary of Defense (Policy)
Under Secretary of Defense (Comptroller)
Secretaries of the Military Departments and Heads of other DoD Components
Vice Chairman of the Joint Chiefs of Staff
Director, Defense Research and Engineering
Director, Operational Test and Evaluation
Assistant Secretary of Defense for Command, Control, Communications, and Intelligence
Director, Program Analysis and Evaluation
Component Acquisition Executives
Program Executive Officers
System Command (SYSCOM)/Designated Acquisition/ Materiel Command Commanders

Program Managers
Overarching Integrated Product Team Leaders

Key Forums (responsibilities are discussed in Chapter 5).

Defense Resources Board
Defense Acquisition Board
Information Technology Overarching Integrated Product Team
Joint Requirements Oversight Council
Cost Analysis Improvement Group
Integrated Product Teams

DoD Regulation 5000.2-R

The DoD 5000.2-R establishes a simplified and flexible management framework for translating mission needs into stable, affordable, and well-managed acquisition programs. The regulation sets forth mandatory procedures for managing ACAT I and ACAT IA programs and, specifically where stated, for nonmajor programs. Nonmajor programs *generally* follow the same process as major programs, however, the Milestone Decision Authority (MDA) tailors the process as appropriate (and consistent with statutory requirements) to best match the conditions of individual nonmajor programs. The general model consists of four major milestones and four phases of life cycle management (see Chapter 7).

DoD Regulation 5000.2-R is divided into six parts.

- **Part 1 – Acquisition Management Process:** Establishes a general model for managing ACAT I and ACAT IA acquisition programs, recognizing that every program is different.

- **Part 2 – Program Definition:** Describes mandatory procedures for translating broadly stated mission needs

into a set of operational requirements from which specific performance specifications are derived.

- **Part 3 – Program Structure:** Describes the elements necessary to structure a successful ACAT I or ACAT IA acquisition program.

- **Part 4 – Program Design:** Establishes the basis for a comprehensive and disciplined approach to the life-cycle design of ACAT I and ACAT IA acquisition programs.

- **Part 5 – Program Assessments & Decision Reviews:** Establishes mandatory procedures for conducting periodic assessments and milestone decision reviews of ACAT I and ACAT IA acquisition programs.

- **Part 6 – Periodic Reporting:** Describes periodically prepared mandatory reports to provide acquisition executives and Congress with adequate information to oversee the acquisition process and make necessary decisions.

The DoD 5000.2-R also includes six appendices that specify mandatory formats in the below listed areas.

- Consolidated Acquisition Reporting System [Three reporting modules: Acquisition Program Baseline; Selected Acquisition Report; Defense Acquisition Executive Summary]
- Operational Requirements Document
- Test and Evaluation Master Plan
- Live-Fire Test and Evaluation Plan
- Major Automated Information System Quarterly Report
- Earned Value Management System Criteria

In addition to the streamlined 5000 documents (DoDD 5000.1 and DoD 5000.2-R) issued since 1996, the *Defense Acquisition Deskbook* has been implemented (see Chapter 3). The Deskbook is intended to be a complete reference library for the acquisition community. It is updated quarterly and is available by mail to government employees free of charge on a Compact Disk (CD). (There is a nominal charge for non-government personnel). The Deskbook CD can be ordered by subscription and can also be accessed directly over the World Wide Web at http://www.deskbook.osd.mil.

5

DEFENSE ACQUISITION MANAGEMENT ORGANIZATIONS

Background

Packard Commission

The 1985-86 President's Blue Ribbon Commission on Defense Management, chaired by former Deputy Secretary of Defense David Packard, involved a comprehensive review of the overall defense acquisition process. Reporting to the President in mid-1986, the Packard Commission recommended creation of a single position responsible for acquisition and establishment of a streamlined reporting chain from the Program Manager (PM) to the milestone (acquisition) decision authority (MDA) within the Under Secretary of Defense for Acquisition and Technology (USD(A&T). President Reagan approved the Commission's recommendations, and directed their implementation in National Security Decision Directive 219 in 1986.

Defense Management Review (DMR)

A follow-on assessment of defense acquisition management was initiated by President Bush in 1989. The DMR reiterated the Packard Commission findings. One of the major recommendations from the Packard Commission and the subsequent DMR was to streamline the PM's reporting chain. This reporting chain provides for no more than two levels of management oversight between the PM and the MDA for all acquisition programs. The

specific reporting chain for any particular program is a function of the program's size and acquisition category (ACAT). (See Chapter 4 for a discussion of ACATs.)

This structure provides a clear line of authority running from the USD(A&T) (the Defense Acquisition Executive (DAE)) through component acquisition executives (CAEs) and Program Executive Officers (PEOs) to the individual PMs of ACAT ID programs. For ACAT IAM programs, the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD(C^3I)), as DoD's Chief Information Officer (CIO), serves as the MDA.

Acquisition Program Reporting

The reporting structure for ACAT ID and ACAT IAM acquisition programs is illustrated in Figure 5-1 below.

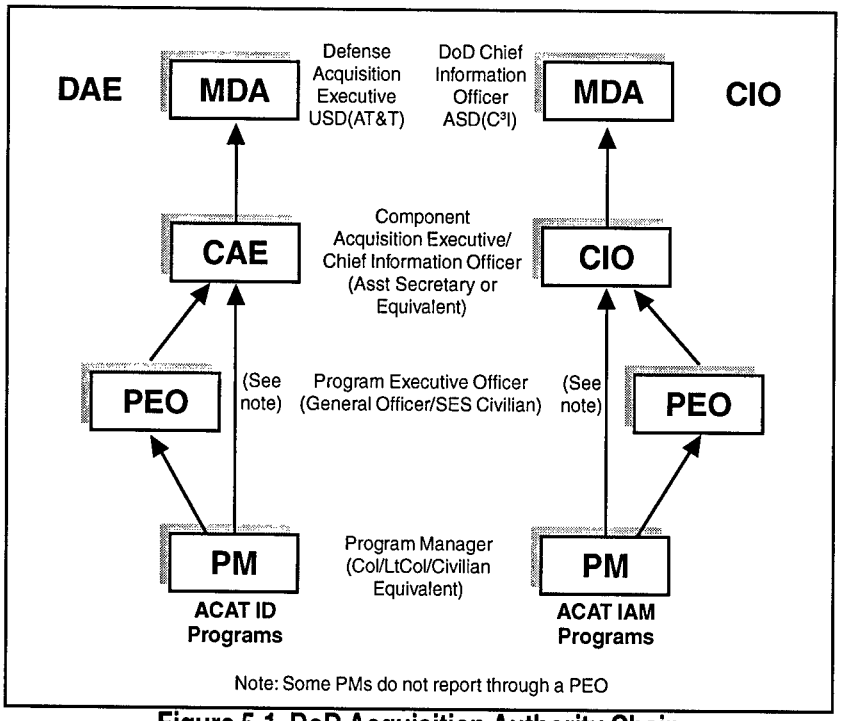

Figure 5-1. DoD Acquisition Authority Chain

Program Executive Officers (PEOs)

The position and function of the PEO was established in 1986 based on the Packard Commission Report. A PEO is typically a one or two star officer or Senior Executive Service equivalent who is responsible for the first line supervision of a group of like programs, each managed by a PM. Examples of PEOs are the Army's PEO for Tactical Missiles, the Navy's PEO for Tactical Aircraft Programs, and the Air Force's PEO for Fighters and Bombers. The numbers of PEOs varies by service and over time, but typically, the services have between six and ten PEOs at any one time.

Direct Reporting Program Managers (DRPMs)

Some PMs do not report to a PEO, but instead report directly to the CAE. These are the DRPMs. They are typically one or two star officers or SES equivalents who manage priority programs of such a nature that direct access to the CAE is deemed appropriate. Examples are the Department of the Army's DRPMs for Biological Defense and Chemical Demilitarization and the Department of the Navy's DRPMs for Strategic Systems and the Advanced Amphibious Assault Vehicle. (The Air Force has no DRPMs at this time.)

Component Acquisition Executives (CAEs)

The senior official in each component (components include the military departments, defense agencies, and the unified commands) responsible for acquisition matters is known as the CAE. For example, the CAEs for the military departments are called the Service Acquisition Executives or SAEs. The SAE for the Army, the Army Acquisition Executive, is the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(AL&T)). The Navy's (and Marine Corps') SAE, the Navy Acquisition Executive, is the Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN(RD&A)). The SAE for the

Air Force, the Air Force Acquisition Executive, is the Assistant Secretary of the Air Force for Acquisition (SAF(AQ)). The SAE reports to the Secretary administratively and to the DAE for acquisition management matters. Each SAE also serves as the Senior Procurement Executive for their military department. In this capacity, they are responsible for management direction of their respective service procurement system. The United States Special Operations Command (USSOCOM) also has an acquisition executive.

ACAT ID programs destined for review/approval by the USD(A&T), and other programs reviewed by the components follow the same basic management oversight process, but the final decision authority is at a lower level for the latter programs. Similarly, ACAT IAM programs destined for review/approval by the ASD(C3I), and other AIS acquisition programs reviewed by the components follow the same basic management oversight process, but with the final decision authority at the lower level for the latter programs.

Component Chief Information Officers (CIOs)

The components have set up an oversight and review process for nonmajor AIS acquisition programs for which the MDA is the Component CIO. The Department of the Army CIO is the Director, Information Systems, Command, Control, Communications, and Computers (DISC4), the Department of the Navy CIO is the Deputy Assistant Secretary of the Navy, Command, Control, Communications, Computers/Electronic Warfare/Space (DASN C4/EW/Space), and in the Department of the Air Force, the AFAE is also the Air Force CIO.

Under Secretary of Defense (Acquisition and Technology) (USD(A&T))

Title 10, United States Code, §133, authorizes the position of USD(A&T). The USD(A&T) serves as both the principal

acquisition official within the DoD and the principal acquisition advisor to the Secretary of Defense (SECDEF). The USD(A&T) serves as the DAE for the department, and for acquisition matters, takes precedence over the Secretaries of the Services and ranks number three within the DoD (directly below the SECDEF and Deputy SECDEF). The USD(A&T) is responsible for establishing acquisition policies and procedures for the DoD.

The USD(A&T) also:

- Supervises the entire DoD acquisition system,
- Chairs the Defense Acquisition Board (DAB),
- Develops acquisition program guidance and ensures compliance with established acquisition policy and procedures,
- Serves as National Armaments Director and SECDEF representative to the Four Power Conference,
- Administers the Defense Acquisition Executive Summary and the Earned Value Management System,
- Establishes policy for the training and career development of acquisition personnel.

The Office of the USD(A&T) has many subordinate activities and staff elements within it. Some of elements are their responsibilities are listed below:

- *Principal Deputy USD(A&T)*: Serves as chief advisor to USD(A&T), acts in the USD(A&T)'s absence, oversees the DAB and DAES functions, and other issues related to systems acquisition.

- *Deputy Under Secretary of Defense for Acquisition Reform (DUSD(AR)):* Responsible for identifying and implementing ways to streamline the acquisition process. Also responsible for the education and training of acquisition personnel. Co-chairs the Defense Acquisition Policy Steering Group (DAPSG) with the Director, Systems Acquisition.

- *Deputy Under Secretary of Defense for Environmental Security (DUSD(ES)):* Responsible for oversight of all environmental issues associated with defense acquisition, to include compliance, cleanup, conservation, and pollution prevention. Also responsible for environmental technology development.

- *Deputy Under Secretary of Defense for Logistics (DUSD(L)):* Oversees policy for readiness, maintenance and transportation.

- *Director, Defense Procurement:* Oversees contracting policy and procedures. Chairs the Defense Acquisition Regulatory Council which issues the Defense Federal Acquisition Regulation Supplement (DFARS), and represents the USD(A&T) on the FAR Council.

- *Director, Systems Acquisition:* Oversees the Defense Acquisition Executive Summary and Earned Value Management System processes, provides the executive secretariat for the DAB, publishes the DoD 5000 series, and co-chairs the DAPSG with the DUSD(AR).

- *Deputy Under Secretary of Defense (Industrial Affairs and Installations (DUSD(IA&I)):* Responsible for industrial base policy, base realignment and closure, reinvestment, economic adjustments, and policy on dual use technology and use of commercial and nondevelopmental items.

- *Deputy Under Secretary of Defense, International Programs:* Responsible for international cooperative program policies.

- *Director, Defense Research and Engineering (DDRE)*: Principal advisor to the USD(A&T) for scientific and technical matters. Responsible for oversight of DoD science and technology programs, acquisition programs, developmental testing, systems engineering, and acquisition logistics.

- *Director, Strategic and Tactical Systems:* Responsible for review of ACAT ID weapon systems prior to the DAB. Chairs the Weapon Systems Overarching Integrated Product Teams (OIPTs) that advise the DAB.

- *Director, Test, Systems Engineering, and Evaluation (DTSE&E)*: Responsible for developmental test and evaluation (DT&E) policies and procedures, systems engineering policies, acquisition logistics and the Foreign Comparative Testing program.

- *Deputy Under Secretary of Defense (Advanced Systems and Concepts):* Manages Advanced Concept Technology Demonstration efforts.

- *Deputy Under Secretary of Defense (Science and Technology):* Oversees basic and applied research.

Other officials that report to the USD(A&T) include:

Executive Director, Defense Science Board
Director, Special Programs
Director, Ballistic Missile Defense Organization
Director, Defense Logistics Agency

In addition to the above, there are several other DoD offices that play a critical role in defense acquisition management. These include:

- *ASD(C^3I)*: As the CIO for DoD, responsible for Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) architecture, policies and procedures, serves as the Department's MDA for ACAT IAM acquisition programs, and establishes acquisition policies for AISs.

- *Director, Operational Test and Evaluation (DOT&E):* Responsible for DoD operational and live fire test and evaluation (LFT&E) policy and procedures. Analyzes results of operational test and evaluation conducted on MDAPs and reports to the SECDEF, the USD(A&T), and the Senate and House Committees on Authorizations and Appropri-ations as to whether test results indicate the system is operationally effective and suitable. Also renders a LFT&E Report to the SECDEF, USD(A&T), and the Senate and House Committees on Authorizations and Appropriations on whether covered systems (primarily ACAT I and ACAT II systems) meet survivability and lethality requirements.

For duties and responsibilities pertaining to the *Under Secretary of Defense for Policy (USD(P)), Under Secretary of Defense (Comptroller) (USD(C),* and *Director, Program Analysis and Evaluation (DPAE),* see Chapter 8.

There are also several boards/councils that are key players in Defense acquisition. These include:

- *Defense Resources Board (DRB)*: As DoD's principal resource management organization, the DRB plays a major role in the Planning, Programming, and Budgeting System (see Chapter 8). It reviews the service and defense agency Program Objectives Memoranda and conducts program execution reviews. Chaired by the Deputy Secretary of Defense, key members of the DRB include the Under Secretaries of Defense, the DPAE, and the DDRE, the

Secretaries of the military departments, and the Chairman and Vice Chairman of the Joint Chiefs of Staff.

- *Joint Requirements Oversight Council (JROC)*: The JROC validates and approves requirements for ACAT I and IA programs, and leads the Joint Staff in developing policies and procedures for determining operational requirements for all programs. The JROC is chaired by the Vice Chairman of the Joint Chiefs of Staff (VCJCS) and includes the following members:

    - Vice Chief of Staff, U.S. Army
    - Vice Chief of Naval Operations
    - Vice Chief of Staff, U.S. Air Force
    - Assistant Commandant, U.S. Marine Corps

In addition to his role as Chairman of the JROC, the VCJCS also serves as Vice Chairman of the DAB and is a member of the DRB.

- *Cost Analysis Improvements Group (CAIG)*: The CAIG is an ad hoc group chartered by the DPAE. Its function is to provide an Independent Cost Estimate of a program's life cycle cost prior to each milestone review of an ACAT ID program. It is also generally responsible for improving cost estimating techniques and practices.

IPTs, the DAB, and the IT OIPT

Integrated Product Teams (IPTs)

Integral to the defense acquisition oversight and review process are IPTs. Their purpose is to facilitate decision making by making recommendations based on timely input from the entire team. IPTs are composed of representatives from all appropriate functional disciplines working together to build successful programs thereby enabling decision makers to make the right decisions at the

appropriate time. Each IPT operates under the following broad principles:

- Open discussions with no secrets
- Qualified, empowered team members
- Consistent, success-oriented, proactive participation
- Continuous "up-the-line" communications
- Reasoned disagreement
- Issues raised and resolved early

For ACAT ID and ACAT IAM programs, there are generally two levels of IPTs above the program office—an OIPT and Working-Level IPTs (WIPTs). The following paragraphs discuss the roles and responsibilities of these IPTs in the defense acquisition process.

OIPTs: Each ACAT ID program is assigned to an OIPT for management oversight. The primary role of the OIPT is to provide strategic guidance and to help resolve issues early as a program proceeds through its acquisition life cycle. OIPTs for weapons systems are headed by the Director, Strategic and Tactical Systems. OIPTs for C^3I systems are headed by the Director, Program Analysis and Integration, OASD(C^3I). Each ACAT IAM is assigned to an IT OIPT headed by the Director, Performance Assessment, OASD(C^3I).

OIPT members include the PM, the PEO, component staff, USD(A&T) staff, the Joint Staff, and other OSD principals (e.g., USD(C), DPAE, CAIG, DOT&E, etc.), or their representatives, involved in oversight and review of a particular ACAT ID or ACAT IAM program. OIPTs meet as required and convene in formal session two weeks in advance of an anticipated milestone decision to assess information and to provide the status of the program to the MDA.

WIPTs: The WIPTs meet as required to help the PM plan program structure and documentation and resolve issues. The leader of each WIPT is usually the PM or the PM's representative. Specific roles

and responsibilities of all WIPTs include the following:

- Assist the PM in developing strategies and in program planning, as requested by the PM.
- Establish an IPT plan of action and milestones.
- Propose tailored document and milestone requirements.
- Review and provide early input to documents.
- Coordinate WIPT activities with the OIPT members.
- Resolve or elevate issues in a timely manner.
- Assume responsibility to obtain principals' concurrence on issues, as well as with applicable documents or portions of documents.

Defense Acquisition Board (DAB)

The DAB is the DoD's senior-level forum for advising the USD(A&T) on critical issues concerning ACAT ID programs. Formal meetings may be held at each milestone to review accomplishments of the previous life cycle phase and assess readiness to proceed into the next phase. The DAB is *issue-oriented.* Typical issues addressed at the DAB include cost growth, schedule delays, and technical threshold breaches. The result of a DAB review is a go or no-go decision from the USD(A&T), documented in an Acquisition Decision Memorandum (ADM). Approximately one week prior to a scheduled DAB review, a DAB Readiness Meeting (DRM) is held to pre-brief the DAB participants. The purpose of the DRM is to update the USD(A&T) on the latest program status and to inform the senior acquisition officials of any outstanding issues. If the outstanding issues are resolved at the DRM (or if there are no outstanding issues), the USD(A&T) may decide that a formal DAB is not required and will issue an ADM following the DRM. (Since the advent of the IPT oversight structure, the majority of ACAT ID programs have not undergone formal DABs).

DAB members include:

- Under Secretary of Defense (Acquisition & Technology), Chairman
- Vice Chairman, Joints Chiefs of Staff, Vice Chairman
- Principal Deputy Under Secretary of Defense (Acquisition & Technology)
- Component Acquisition Executives of the Army, Navy and Air Force
- Under Secretary of Defense (Comptroller)
- Assistant Secretary of Defense (Command, Control, Communications & Intelligence)
- Director, Defense Research and Engineering
- Assistant Secretary of Defense (Strategy and Requirements)
- Director, Program Analysis and Engineering
- Director, Operational Test and Evaluation
- Defense Acquisition Board Executive Secretary
- Overarching Integrated Product Team Leader
- Program Executive Officer
- Program Manager

There are about 30 ACAT ID programs at any given time that are subject to the DAB process; another 50 or so ACAT IC programs are managed at the component level.

Information Technology Overarching Integrated Product Team (IT OIPT)

The IT OIPT is the DoD's senior level forum for advising the ASD(C^3I) on critical decisions concerning ACAT IAM programs. It is chaired by the Director, Performance Assessment (OASD C^3I)

who is routinely supported by senior advisors from the OSD staff. Principal members of the IT OIPT include representatives from the offices of the USD(C), the Joint Staff, the DOT&E, the DTSE&E, the Director, Systems Acquisition, the Deputy ASD(C^3I), user representatives, and the cognizant component CIO (or CAE, as appropriate). The decision authority for nonmajor AIS programs is the component CIO.

Component Level Oversight

Each service and defense agency has its own oversight and review process which parallels the DAB and IT OIPT processes. These processes are used for managing non-major programs, and for reviewing ACAT ID (or ACAT IAM) programs prior to a DAB (or IT OIPT). Following is a summary of the individual service level reviews and their respective chairman.

Service Level Review[3]	Chaired/Co-Chaired By
Army Systems Acquisition Review Council (ASARC)	Assistant Secretary of the Army (Acquisition, Logistics and Technology)/Vice Chief of Staff of the Army
Air Force Systems Acquisition Review Council/Air Force Acquisition Board (AFAB)*	Principal Deputy Assistant Secretary of the Air Force (Acquisition)
Program Decision Meeting (Navy)	Assistant Secretary of the Navy (Research, Development and Acquisition)
Program Decision Meeting (Marine Corps)	Assistant Secretary of the Navy (Research, Development and Acquisition)
* Not all programs reviewed by each body.	

[3] The reviews noted below apply primarily to weapon system programs, although the process for automated information systems is similar. For ACAT IAC programs, the MDA is the component CIO.

6

REQUIREMENTS GENERATION PROCESS

Requirements generation is an intensive process with several key elements. These include the study and analysis of mission areas (called Mission Area Analysis (MAA)), subsequent assessment of alternative solutions to meet warfighting deficiencies (called the Analysis of Alternatives (AoA)), and the development of system specific performance requirements which are documented in the Operational Requirements Document (ORD).

Three documents are used in the Department of Defense (DoD) to describe requirements: the Mission Need Statement (MNS), the Capstone Requirements Document (CRD), and the ORD. The MNS is generated first, based on an analysis of warfighting mission areas, i.e., the MAA. It describes a warfighting deficiency, or an opportunity to provide new capabilities, in broad operational, not system specific, terms. The CRD documents overarching system requirements for a broad mission need, such as surveillance or missile defense, from which may emerge a "system of systems." into more detailed and refined performance capabilities and characteristics of the proposed system concept. The ORD also contains Key Performance Parameters (KPPs). The KPPs are performance parameters deemed so critical to the success of the system that failure to attain their minimal values (called the "threshold values") would cast doubt on the desirability/viability of the program. Multiple ORDs may emerge from a MNS or a CRD.

Determination of Mission Needs

The determination of mission needs is based on MAA, and is a continuing process of assessing the capabilities of the current force

structure (people and materiel) to meet the projected threat, while taking into account opportunities for technological advancement, cost savings, and changes in national policy or doctrine. Mission areas are broad categories of warfighting responsibility, such as fire support for the Army, amphibious warfare for the Marine Corps, air support and interdiction for the Air Force, and strategic sealift/ protection for the Navy. MAAs are conducted by the Training and Doctrine Command (TRADOC) in the Army, the Center for Naval Analysis (CNA) and/or the Office of the Chief of Naval Operations (OPNAV) staff in the Navy, the Marine Corps Combat Developments Command (MCCDC) in the Marine Corps, and the operational commands (e.g., Air Combat Command or Air Mobility Command) in the Air Force.

Once identified, deficiencies (i.e., mismatches between current and projected capabilities and the future threat) need to be resolved. First considered are changes in doctrine, tactics, training, organizational structure. These alternatives, often called "nonmateriel alternatives," are investigated first because of their relatively low cost and ease (i.e., speed) of implementation. Should nonmateriel alternatives prove incapable of resolving the deficiency, we are forced to look for materiel solutions. The requirement for a materiel solution is documented in a MNS.

MNSs are written for all mission needs that may result in acquisition programs, regardless of acquisition category (ACAT), and are prepared in accordance with guidance contained in Chairman of the Joint Chiefs of Staff Instruction 3170.01 (CJCSI 3170.01). MNSs are not written for mission needs that can be resolved by nonmateriel solutions. The overall process for determining mission needs is depicted in Figure 6-1.

Since a MNS describes a warfighting deficiency or technological opportunity, descriptions of specific performance characteristics or specific system solutions are not appropriate. A requirements validation authority reviews, validates, and approves MNSs. Validation confirms that the need exists and cannot be resolved by

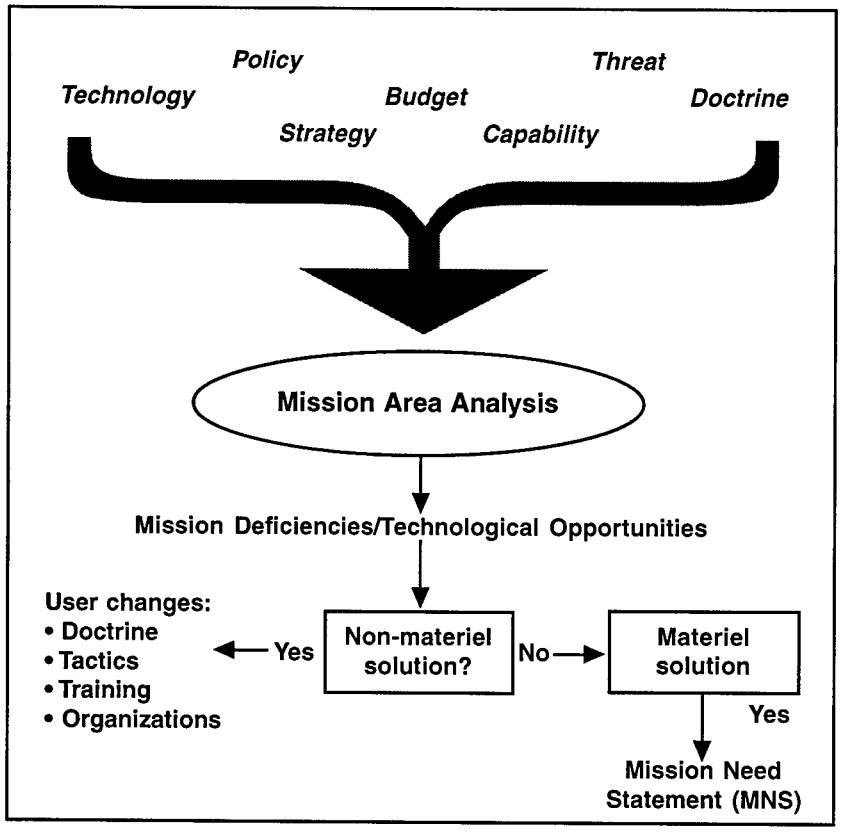

Figure 6-1. Mission Need Determination

a nonmateriel solution. Approval represents sanction of the need and certifies it has been subject to the process contained in CJCSI 3170.01 and the 5000 series. The validation authority also determines joint service potential, and then forwards approved MNSs to the appropriate Milestone Decision Authority (MDA) for a Milestone 0 review. Disapproved MNSs are returned to the originator, who notifies the user. The flow of a MNS from originator to a Milestone 0 is shown in Figure 6-2.

The Joint Requirements Oversight Council (JROC) is the validation and approval authority for MNSs with the potential to lead to ACAT I programs. Once the JROC validates and approves a MNS it is sent to the Under Secretary of Defense (Acquisition and Tech-

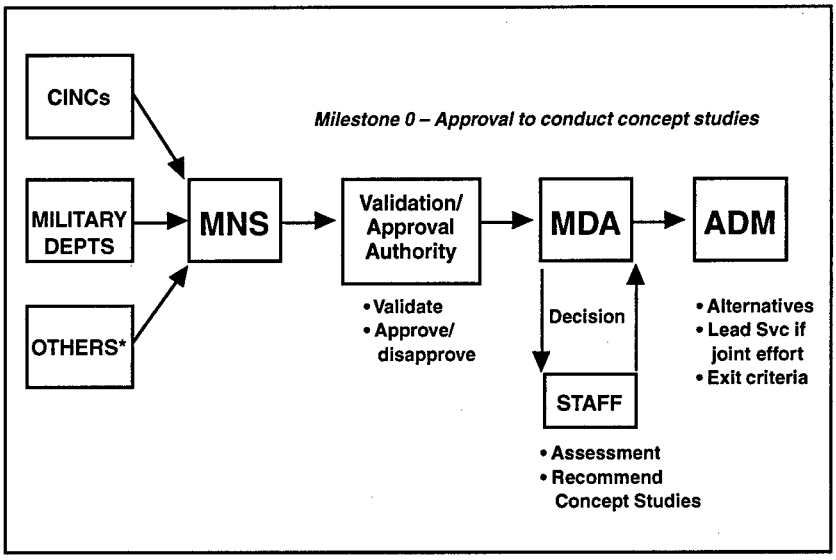

Figure 6-2. Mission Need Statement (MNS) Flow

nology) (USD(A&T)) for a Milestone 0 decision. For potential nonmajor programs, the chiefs of the military services, heads of defense agencies, and commanders-in-chief (CINCs) of unified commands validate and approve their own MNSs. Each MNS that could result in a nonmajor program is sent to the respective component acquisition executive (CAE) for a Milestone 0 decision.

If the requirement could result in an ACAT IA program, the MNS is validated and approved by the appropriate Office of the Secretary of Defense (OSD) Principal Staff Assistant (PSA)[4] and/or the JROC. Milestone 0 decisions for these efforts are made by the DoD Chief Information Officer (CIO), the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD(C^3I)). Requirements that could result in nonmajor AIS acquisition programs are sent to the component CIO for a Milestone 0 decision.

[4] The OSD Principal Staff Assistants are the Under Secretaries of Defense, the Assistant Secretaries of Defense, the DDRE, the DOTE, the Inspector General of DoD, the General Counsel of DoD, the Assistants to the SECDEF, and the OSD Directors, or equivalent, who report directly to the SECDEF or DEPSECDEF.

Milestone 0: Entry into Concept Exploration Phase/ Development of the ORD

A favorable Milestone 0 decision marks the transition from the requirements generation process to the acquisition management process. Assuming there are no existing US systems, or other on-hand materiel that can satisfy the mission need, studies and analysis of all feasible concepts are undertaken, based on the following hierarchy of materiel alternatives:

- Procurement (including modification) of commercially available systems or equipment, the additional production (including modification) of already-developed US military systems or equipment, or Allied systems or equipment,
- Cooperative development program with one or more Allied nations,
- New joint-service development program, and
- New Service-unique development program.

During this first phase of the acquisition life cycle (Concept Exploration (CE)), the user will conduct an AoA to gauge the cost and operational effectiveness of possible alternatives to satisfy the mission need as part of the overall CAIV approach. The selection of a preferred alternative based on the AoA allows the user to finalize the initial ORD describing operational performance in terms of objectives and minimum acceptable requirements (thresholds) for presentation at the next milestone, usually Milestone I. The ORD will continue to evolve as the initial broad objectives and minimum acceptable requirements become more detailed (in number and specificity) as a result of cost-schedule-performance trade-offs during each subsequent phase of the acquisition life cycle (see Chapter 7).

Interoperability

Important in the evaluation process for new or modified systems are considerations for interoperability and integration with existing and future components and systems

As shown in Figure 6-3, interoperability issues affect all kinds of systems. Interoperability is the ability of systems, units, or forces to provide services to, and accept services from, other systems, units, or forces, and to use the services so exchanged to enable them to operate effectively together. When applied to communications-electronics systems or items, interoperability means information can be exchanged directly and satisfactorily between systems and items of equipment.

Interoperability policy affects both kinds of Information Technology (IT) systems: Automated Information Systems (AISs), i.e., systems that normally satisfy business and/or administrative requirements, e.g., the AISs which are used in the Defense Com-

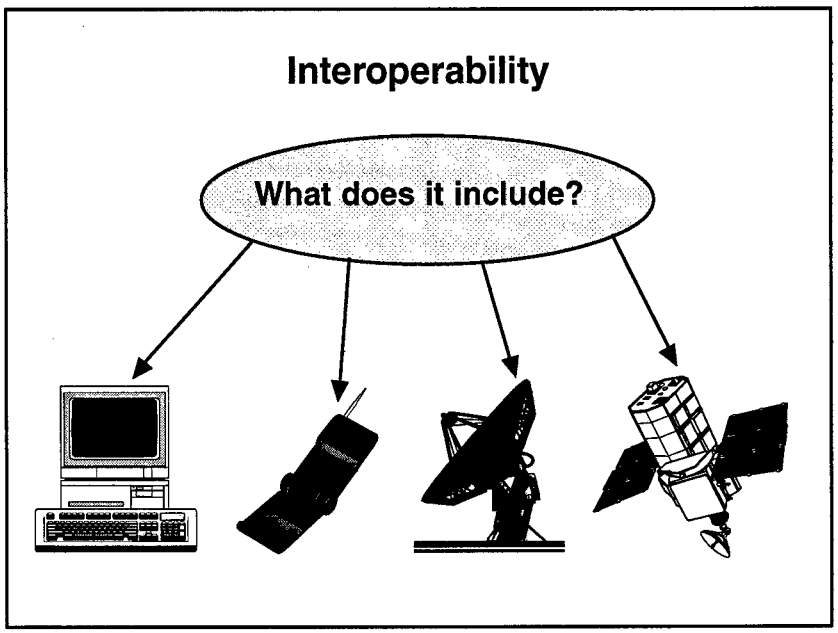

Figure 6-3. Interoperability

missary System or by Defense Finance Centers, and C4I systems used in an operational environment to assist the commander in organizing, directing and controlling warfighting forces.

Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance Architecture Framework (C4ISR AF)

As can be imagined, the achievement of seamless interoperability between all DoD C4I systems is of the highest priority. To this end, the C4ISR AF has been announced. See Figure 6-4.

The C4ISR AF establishes the strategic direction for all DoD C4ISR architectures. All planned or on-going C4ISR architectures must be developed in accordance with the framework. The framework attempts to facilitate interoperability through the use of common

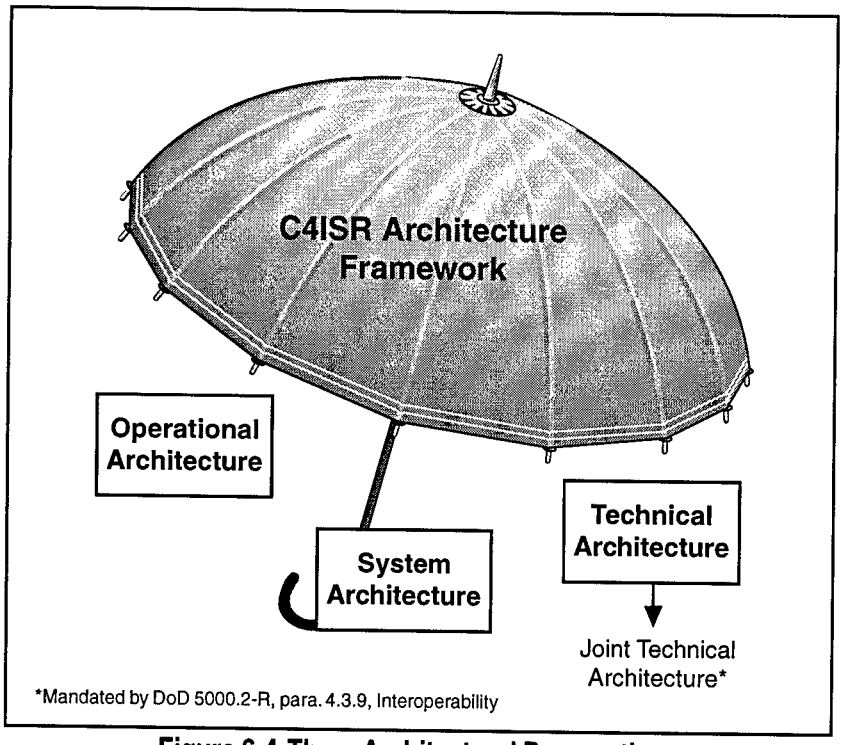

Figure 6-4. Three Architectural Perspectives

terminology and a common technical architecture which views C4ISR systems from three perspectives: an *operational architecture* defined by the user and consisting of missions/tasks to be executed and logical and information data flows representing the requirements; a *system architecture* defined by the developer which is made up of the computer and communications hardware and software that meets the user's requirement defined in the operational architecture; and the *technical architecture* which is the set of rules/standards/protocols (similar to "building codes") that the developer uses when designing the system architecture to meet the user's requirements defined in the operational architecture. Currently, the Joint Technical Architecture (JTA) is the overarching technical architecture approved for use by DoD systems, and is mandatory for all C4I and AIS programs and the interfaces of other key assets, such as weapons and sensors, with C4I systems.

Testing of Interoperability Requirements

All C4I systems having joint interoperability requirements, regardless of ACAT, must be tested and certified by the Joint Interoperability Test Command (JITC). This testing may be performed in conjunction with developmental and operational testing whenever possible to conserve resources. The Director, Defense Information Systems Agency, will issue the certification as to whether a system meets its interoperability requirements based on the results of the testing performed by the JITC.

7

ACQUISITION MANAGEMENT (LIFE CYCLE) PROCESS

Key Activities

All programs, regardless of acquisition category (ACAT), must accomplish certain key activities. These activities generate information that structures and defines the program, and facilitates planning and control by the Program Manager (PM) and oversight by the Milestone Decision Authority (MDA). The information generated by key activities may be contained in stand-alone documents, or may be structured in accordance with the desires of the MDA. Most of this information/documentation is carefully constructed by the PM using integrated product teams (IPTs).

Key activities include requirements determination, selection of a preferred alternative, cost estimating, formulation of an strategy acquisition and program structure, contract planning and management, budget execution, formulation of an Acquisition Program Baseline (APB), test planning, interoperability planning, the proposal of exit criteria to the MDA, and technical management as noted below:

Requirements determination: The program must address the mission need documented in the *Mission Need Statement (MNS)* and meet the system peculiar performance documented in the *Operational Requirements Document (ORD)* (see Chapter 6).

Selection of a preferred alternative: Alternatives which could potentially meet the mission need are analyzed as part of the Cost as an Independent Variable (CAIV) process (see Chapter 2) for establishing requirements in the context of cost-performance trades. For an ACAT I program this process can be quite formal, requiring significant time, effort and dollars. The analysis supporting a preferred alternative is usually contained in a document called an *Analysis of Alternatives*, but the detail and formality of an AoA is at the discretion of the MDA.

Cost estimating: In addition to the cost performance trades accomplished by the CAIV process, detailed cost estimating must be accomplished to support inputs into the Program Objectives Memorandum (see Chapter 8), and the budget. Cost estimating is done at the program level (called the *Program Office Estimate*), the component headquarters level (called a *Component Cost Analysis*), and at the defense staff level (called an *Independent Cost Estimate*), as appropriate to the ACAT of the program. (For example, the Cost Analysis Improvement Group performs an ICE for ACAT ID programs—ICEs are not required for nonmajor programs. See Chapter 4.) Additionally, cost estimating supports *affordability assessments* which determine whether a component can "fit" a program within its projected budget authority (over time) given all of the component's other commitments.

Preparation of an acquisition strategy and program structure: The *Acquisition Strategy,* developed by the PM and approved by the MDA, is a comprehensive, overarching master plan which details how the program's goals and objectives will be met, and serves as a "roadmap" for program execution from program initiation through post-production support. It describes the key elements of the program (e.g., requirements, resources, testing, contracting approach, and open systems design) and their interrelationship, and evolves over time becoming increasingly definitive as the program matures. Acquisition strategies are tailored to the specific needs of an individual program. Program structure charts are

schedules that graphically depict the time phasing of key program activities. They are also known as "milestone charts."

Contract planning and management: Contracting for goods and services is fundamental since the functions inherent in systems acquisition such as analysis, design, development, test, production, sustainment, modification and disposal of systems are accomplished through contracts with private industry. Typical activities include preparing an *Acquisition Plan* (a description of contracting strategy for the program with emphasis on the types and numbers of contracts to be awarded in an upcoming phase), preparing the *Request for Proposal (RFP)* (a document which describes the task(s) or service(s) that the government wants industry to propose against), conducting a source selection (a process to select the winning contractor(s) from among those that submit proposals in response to the RFP), and performing contractor surveillance and monitoring contract performance.

Budget execution: Resources must be budgeted and obtained to execute contracts with industry. This includes formulating input for the *Program Objectives Memorandum* (a spend plan covering a 5- or 6-year period), the budget, and other programmatic or financial documentation in support of the Planning, Programming, and Budgeting System. Funds are "obligated" upon the signing of a contact; funds are "outlayed" as the government makes actual payment in accordance with the contract for goods and services rendered.

Preparation of an Acquisition Program Baseline (APB): The *APB* contains the most important cost, schedule and performance parameters, described in terms of threshold and objective values. A threshold value is a required value while an objective value is a desired value. Schedule parameters include key schedule events, such as milestone reviews, initiation of key testing, and the start of production. Performance parameters are the Key Performance Parameters specified in the *Operational Requirements Document*

(see Chapter 6). Thus, the APB is a convenient summary of the most important aspects of a program (cost, schedule and performance), and provides a useful tool for management to assess how well a program is progressing towards it stated objectives. The APB is developed by the PM and approved by the his chain of authority up to the MDA. For example, the APB for an ACAT ID program will be approved by the PEO, CAE and DAE.

Test planning: Test planning is central to the formulation of a coherent acquisition strategy since there is a variety of testing which must be planned and accomplished either to confirm program progress, or to conform to statutory dictate. Testing includes developmental test and evaluation, operational test and evaluation, and live fire test and evaluation, as appropriate. The PM's *Test and Evaluation Master Plan (TEMP)* documents the overall structure and objectives of the test and evaluation program. It provides a framework to generate detailed test and evaluation plans for a particular test, or type of test, and contains resource and schedule implications for the test and evaluation program. Thus, the test and evaluation program must be fully integrated into the acquisition strategy.

Interoperability planning: Interoperability between the services and defense agencies is a critical issue. To facilitate planning and ensure interoperability policy is being considered and addressed, a Command, Control, Communications, Computers and Intelligence (C4I) Support Plan is required for all weapon systems/ programs that interface with C4I systems. The *C4I Support Plan* includes system description, employment concept, operational support requirements, and interoperability and connectivity requirements. It also contains an evaluation of the intelligence support for targeting requirements required by the program.

Formulation of exit criteria: MDAs use *exit criteria* to establish goals for an acquisition program during a particular phase. At each milestone review, the PM proposes exit criteria appropriate to the next phase of the program for approval by the MDA. Exit criteria are phase specific tasks selected to track progress in important

technical, schedule or risk management areas. They act as "gates," which when successfully passed, demonstrate that the program is on track to achieve its final goals. Examples of appropriate exit criteria are achieving a level of performance (e.g., engine thrust, or missile range), or successful accomplishment of a task (e.g., first flight). Exit criteria are documented in the *Acquisition Decision Memorandum (ADM)* issued by the MDA upon completion of a milestone review.

Technical management: This is a broad term including the management of a totally integrated effort of system engineering, test and evaluation, production, and logistics support over the system life cycle. Its goal is timely deployment of an effective system, sustaining it, and satisfying the need at an affordable cost. Technical management involves balancing a system's cost, schedule, and performance. Cost includes all funds required to design, develop, produce, operate, support, and dispose of a system. Schedule includes the time it takes to design, develop, produce, and deploy a fully supported system. Performance is the degree to which a system can be expected to perform its mission in combat. Technical management includes defining the system, conducting design engineering, performing systems engineering (system cost, schedule, and performance trade-offs), developing/acquiring computer resources (including software), planning for logistics support, identifying and tracking reliability, availability, and maintainability requirements, transitioning from development to production, configuration management, ensuring producibility of the final design, defining manufacturing processes and controls, and planning for disposal at the end of useful life.

Acquisition Life Cycle

The framework in which these key activities occur is called the acquisition life cycle. The generic model for this process is illustrated in Figure 7-1. Program managers tailor/streamline this model to the maximum extent possible, consistent with technical risk, to provide new systems to the warfighter as fast as possible.

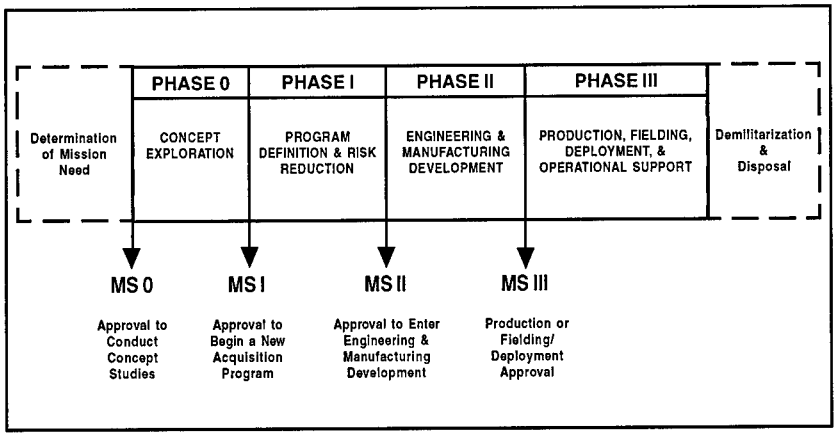

Figure 7-1. Acquisition Milestones and Phases

The life cycle process consists of decision points, or milestones, and periods of time, or phases. The MDA will approve passage from one phase to the next by signing an ADM upon completion of a successful milestone review.

The life cycle of a program begins with planning before the program is approved or officially begins at Milestone I, and takes the program through research, development, production, deployment, support, upgrade, and finally, demilitarization and disposal. References to "life cycle" in the acquisition business, such as total life cycle costs (LCC) of developing, producing, deploying, supporting, and disposing of a system, include all costs associated with the system, literally from "cradle to grave." Major defense systems may take over 10 years from identification of a deficiency (or technological opportunity) to fielding of a system to satisfy the requirement. Completion of a program often connotes deploying/fielding the system so that a predetermined number of operational forces have the system and the capability of using it, a point called Initial Operational Capability (IOC). During those 10 or more years, the program is controlled through a series of steps involving periodic business and technical decisions. These decisions are scheduled into the overall strategy (i.e., the acquisition strategy) to acquire the system. They provide both the PM and senior officials

in the component and in the offices of the Under Secretary of Defense (Acquisition and Technology) (USD(A&T)) and the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD(C^3I)), the framework with which to review acquisition programs, monitor and administer progress, identify problems, and make corrections.

Many programs follow the process illustrated in Figure 7-1. However, if a new system essentially is an updated version of an existing one, or is one in which a proven or available technology or system is to be used (e.g., nondevelopmental item (NDI)), such a program would probably omit a milestone(s) or phase(s), or accomplish multiple phases or technical functions simultaneously (called concurrency) to accelerate the process. This process (of adjusting the life cycle model to fit a particular set of programmatic circumstances) is often referred to as "tailoring." The number of phases and decision points are tailored by the PM based on an objective assessment of the program's risks and the urgency of the user's need. Milestone decisions for ACAT ID programs are made by the USD(A&T) after program review by the respective Overarching Integrated Product Team (OIPT) and, if applicable, the Defense Acquisition Board (DAB). For ACAT IAM programs, the milestone decisions are made by the ASD(C^3I) following a review by the IT OIPT.

Following is a brief discussion of each of the phases and milestones of the life cycle process model. Pre-Phase 0 activities, including the identification of deficiencies and determination of mission needs, were discussed in Chapter 6.

Milestone 0, Approval to Conduct Concept Studies. Authorizes entry into concept exploration (CE) (Phase 0). The MDA will specify the minimum set of alternatives to be examined, the lead organization, and exit criteria for Phase 0. The USD(A&T) is the MDA for potential ACAT I programs. (Note that a favorable Milestone 0 decision does not initiate a new acquisition program.) For ACAT IA programs, the Joint Requirement Oversight Council

(JROC), or the cognizant OSD Principal Staff Assistant (PSA) (see Chapter 6), validates and approves the mission need, and the ASD(C^3I) convenes a Milestone 0. Milestone 0 decisions for potential nonmajor acquisition programs are made by the respective Component Acquisition Executive (CAE). For potential nonmajor AIS acquisition programs, the Milestone 0 decision is made by the Component CIO.

Phase 0, Concept Exploration (CE). Competitive, parallel, short-term studies are conducted. The focus of these efforts is to define and evaluate the feasibility of alternative concepts and to provide a basis for assessing the relative merits of these concepts at the next milestone decision point. The AoA will provide a vehicle for comparing the competing concepts in a common frame of reference. The program's initial acquisition strategy, cost estimates, ORD, APB including CAIV-based objectives, TEMP, and C4I Support Plan are formulated during this phase. The PM will also propose exit criterial for the next phase, usually Phase I, Program Definition and Risk Reduction. Phase 0 is generally short (1–2 years in duration) and relatively low cost.

Milestone I, Approval to Begin a New Acquisition Program. Approval for initiation of a new program and entry into Phase I, Program Definition and Risk Reduction. The initial acquisition strategy and Acquisition Program Baseline (APB) are approved. Exit criteria that must be accomplished during Phase I are also approved by the MDA and documented in the ADM.

Phase I, Program Definition and Risk Reduction. Characterized by measures designed to reduce the risk of incorporating new and emerging technologies. Early prototyping and testing are common. Phase I is typically 2-4 years in duration, although programs involving prototype development can spend 5 years or longer in this phase (e.g., Air Force's F-22 program). Cost drivers, cost-performance trades, interoperability, and acquisition strategy alternatives are considered, to include evolutionary and incremental software development. The acquisition strategy, ORD,

APB and TEMP are revised, as appropriate, based on the PDRR experience.

Milestone II, Approval to Enter Engineering and Manufacturing Development (EMD). Approves entry into EMD (Phase II). The revised acquisition strategy and APB are approved. Exit criteria that must be accomplished during Phase II are approved and documented in the Milestone II ADM. Additionally, low rate initial production (LRIP) quantities are identified and approved.

Phase II, Engineering and Manufacturing Development (EMD). Phase II is typically 4–7 years in duration, and is focused on finalizing the system design and ensuring it is ready for production. Manufacturing and production processes are validated. There is a heavy emphasis on testing—developmental testing to ensure specifications are met, live fire testing to ensure survivability and lethality requirements are met, and operational testing to ensure the system can perform its mission in a simulated combat environment. Following a favorable program review, Low Rate Initial Production (if it is a part of the program acquisition strategy) begins. The acquisition strategy, ORD and APB are revised, as appropriate, based on the EMD experience.

Milestone III, Production or Deployment Approval. Approval for entry into production for an acquisition program and into deployment for an automated information system program. The revised acquisition strategy and APB are approved. Exit criteria that must be accomplished during Phase III are established, as appropriate.

Phase III, Production, Fielding/Deployment, and Operational Support. Phase III may last up to 40 years. Systems are produced at an economical rate. For those systems which began Low Rate Initial Production in Phase II, production is ramped up from low-rate to full-rate. The system is produced and delivered (along with support infrastructure) to the field for operational use. The system will achieve its Initial Operational Capability, and eventually, its

Full Operational Capability, at the conclusion of system fielding. Follow-on operational testing may be conducted to verify the correction of deficiencies, complete the initial operational test, evaluate significant changes in design or employment, or assess interoperability. System status is monitored to ensure the system continues to meet the user's needs. Logistics and readiness concerns and issues dominate this phase. Especially critical is the approach to long-term supportability for information technology (IT) systems, or systems with a significant IT component. Called "Post Deployment Software Support," the program manager must now successfully implement the supportability concept previously developed to insure system readiness and continued user satisfaction. The supportability concept may rely on a government activity, a commercial vendor, or a combination of both, to provide support over the life of the system.

During deployment and throughout operational support, the potential for modifications to the fielded system continues. (Modifications to a program may occur at any time, but are most prevalent during the production, fielding/deployment, and operational support phase). Modifications that are of sufficient cost and complexity to qualify as ACAT I or ACAT IA programs are considered as separate acquisition efforts for management purposes. Modifications that do not cross the ACAT I or ACAT IA threshold are considered part of the program being modified.

Post-Phase III Activities. At the end of a system's useful life it must be demilitarized and disposed of. During this portion of the system life cycle, the PM must ensure the materiel requiring demilitarization is controlled. The PM must also ensure disposal minimizes DoD's liability due to environmental, safety, security, and health issues.

8

RESOURCE ALLOCATION PROCESS (RAP)

Resources for Department of Defense (DoD) activities, whether weapon (or information) systems or personnel costs, are provided through the RAP. Resources include dollars (funds), material, people, facilities, and equipment. The four phases of the RAP are:

- Phase 1 – Planning, Programming, and Budgeting System (PPBS)
- Phase 2 – Enactment
- Phase 3 – Apportionment
- Phase 4 – Execution

From the standpoint of developing, producing, fielding, and supporting weapon systems, the PPBS is the focus of attention in the service and defense agency headquarters activities, while Program Managers (PMs) and their Program Executive Officers (PEOs) are equally concerned with execution. Following is a brief discussion of these four phases, which are depicted in Figure 8-1.

PHASE I – PPBS

The PPBS is the DoD management system that ultimately produces DoD's portion of the President's Budget. It was originally introduced by Secretary of Defense Robert McNamara in 1962 and is unique to the DoD. The PPBS is a 14–16 month cyclic process with three distinct but interrelated phases, planning,

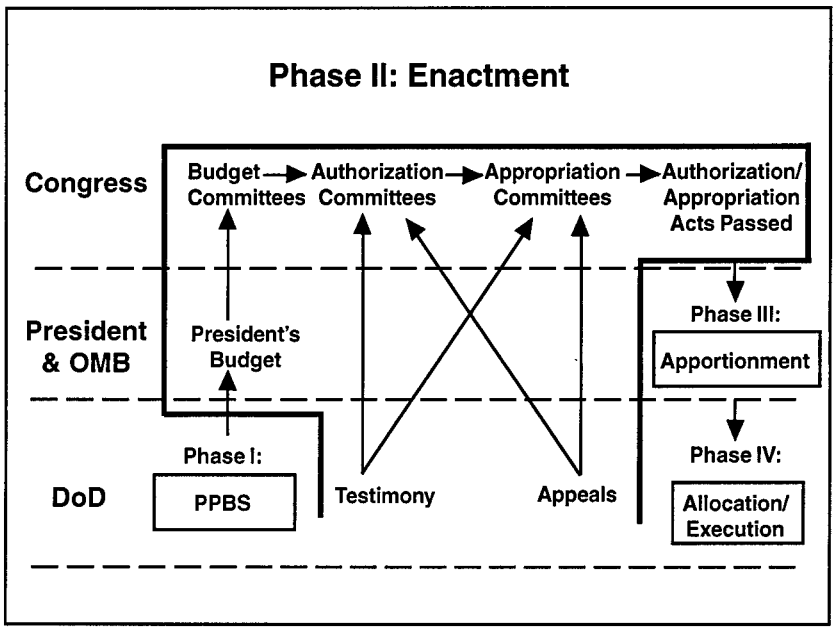

Figure 8-1. Resource Allocation Process (RAP)

programming, and budgeting. These phases provide a formal, systematic structure for making decisions on policy, strategy, and the development of forces and capabilities to accomplish anticipated missions. The PPBS provides for a time-phased allocation of resources and submission of supporting documentation. The PPBS objective is to provide operational commanders with the best mix of forces and support in view of real fiscal constraints.

The Deputy Secretary of Defense (DEPSECDEF) manages the PPBS with the advice and assistance of the Defense Resources Board (DRB), which he chairs. The DRB includes the four Under Secretaries of Defense (i.e., for Acquisition and Technology (USD(A&T)), Policy (USD(P)), Comptroller (USD(C)), and Personnel and Readiness (USD(P&R)), the Director, Program Analysis and Evaluation (DPA&E), the Chairman and Vice Chairman of the JCS, and the service secretaries of the Army, Navy and Air Force. The PPBS is the calendar-driven process through which DoD prepares its annual budget. Beginning in 1986 with

submission of the first two-year defense budget (for fiscal years 1988-89), PPBS became a nominal biennial process. PPBS also results in periodic updates to the Future Years Defense Program (FYDP). The FYDP reflects requirements for the out-years (years beyond the next budget year) based on DoD planning to meet national defense objectives. It represents those programs approved by the Secretary of Defense (SECDEF) (via the DEPSECDEF and the DRB). A brief description of each of the segments of the PPBS follows.

Planning. This phase is the responsibility of the USD(P). The planning phase starts in the fall and ends in the spring with publication of the *Defense Planning Guidance (DPG).*

Programming. This phase is managed by the DPA&E. It is the bridge between planning (with broad fiscal guidance) and budgeting (which meticulously prices each program element). It begins with the issuing of the draft DPG early in the year and ends with the submission of the service and defense agency Program Objectives Memoranda (POMs) in mid-summer. Military departments, defense agencies, and the Commander-in-Chief (CINC) of U.S. Special Operations Command (USSOCOM)) prepare POMs based on guidance contained in the DPG. The POM is the service (or defense agency) request for resources to accomplish its mission(s).

Budgeting. The USD(C) is responsible for this phase. Based on Office of the Secretary of Defense (OSD) review/ comment on the POMs, budget estimate submissions (BESs) are prepared and forwarded (in September) to OSD by the military departments and defense agencies. Service and defense agency budgets are reviewed and the final DoD budget then goes to the Office of Management and Budget (OMB) to be incorporated into the President's Budget submission to Congress in February, thus ending the budgeting phase.

The following table summarizes the responsible agency and key product of each PPBS segment.

SEGMENT	OSD ACTION AGENCY	PRODUCT
Planning	Under Secretary of Defense (Policy)	Defense Planning Guidance
Programming	Director, Program Analysis & Evaluation	Approved Program Objectives Memorandum
Budgeting	USD (Comptroller)	DoD portion of the President's Budget

PHASE II – ENACTMENT

Enactment is the process through which the Congress reviews the President's Budget, conducts hearings, and passes legislation. Enactment begins when the President submits the annual budget to Congress in early February of each year and ends when the President signs the annual authorization and appropriation bills approximately nine months later. "Authorization" approves programs and specifies maximum funding levels and quantities of systems to be procured. The "appropriations process" provides the budget authority with which to incur obligations (i.e., obligate) and expend and outlay funds. Even though DoD has complied with biennial budgeting since January 1987, Congress authorizes most programs and funding on an annual basis and appropriates funds on an annual basis. There are a few exceptions. The most notable are programs for which multiyear (rather than annual) procurements have been authorized. However, even multiyear procurements must be funded by annual appropriations.

PHASE III – APPORTIONMENT

Once the authorization and appropriations legislation is signed into law by the President, funds are made available for DoD and other

federal agencies. "Apportionment" occurs when OMB provides these funds to DoD and other federal agencies. Subsequently, DoD allocates funds within the department through action by the USD(C) and each counterpart in the services and defense agencies.

PHASE IV – EXECUTION

The execution phase occurs when appropriated funds are spent on defense programs. In other words, it is the process of "obligating" funds (awarding contracts) and "expending" funds (writing checks to pay bills). Outlays occur when government checks are cashed and money flows out of the U.S. Treasury. The four phases of the RAP overlap (see Figure 8-2).

The current fiscal year budget is being executed while enactment of next year's is underway, and programming for the following budget is in process. Planning is essentially a continuous process.

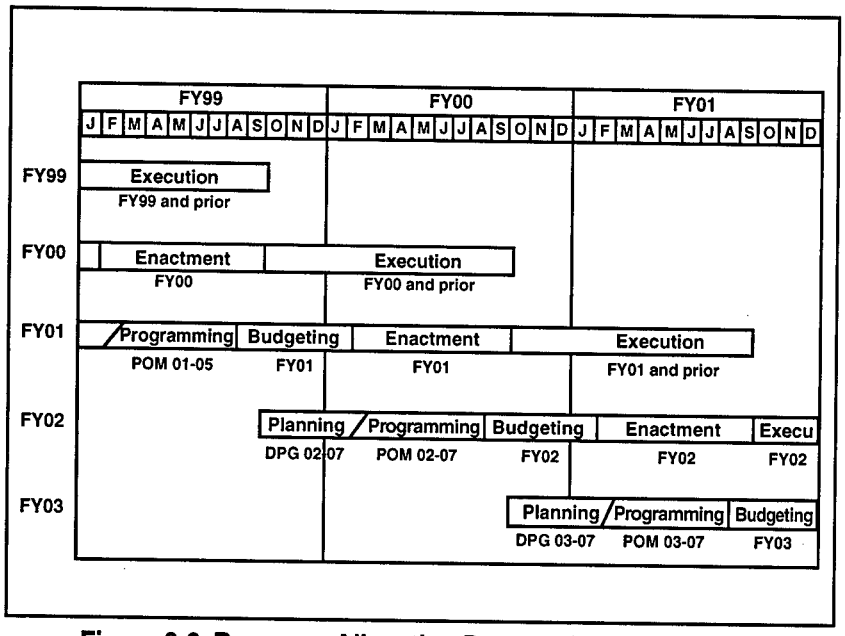

Figure 8-2. Resource Allocation Process (RAP) – Overlap

It is incumbent on PMs and other officials responsible for any aspect of RAP to be aware of the sequence of activities and to understand where they are at all times. Note that the PPBS is a calendar driven system and that the acquisition life cycle is event driven. Avoiding a mismatch or disconnect between programmatic requirements and available funding demands close attention on the part of PMs. This may be the most challenging part of a PM's job, and the greatest single source of program instability.

INTERNET WORLD WIDE WEB LOCATIONS

For readers who wish to follow-up with additional study on the defense acquisition process, the following list of WWW locations for the major organizations and documents mentioned in this pamphlet may be helpful. (Addresses are current as of the publication date of this pamphlet).

Organization/Document	WWW Location
• Acquisition Deskbook	http://www.deskbook.osd.mil
• Acquisition Reform	http://www.acq.osd.mil/ar
• Assistant Secretary of the Army (Acquisition, Logistics and Technology), the Army Acquisition Executive	http://www.sarda.army.mil
• Assistant Secretary of the Air Force (Acquisition), the Air Force Acquisition Executive	http://www.safaq.hq.af.mil
• Assistant Secretary of the Navy (Research, Development and Acquisition), the Navy and Marine Corps Acquisition Executive	http://www.hq.navy.mil/RDA
• Assistant Secretary of Defense (C^3I), the DoD Chief Information Officer	http://www.c3i.osd.mil
• Advanced Concept Technology Demonstrations (ACTD)	http://www.acq.osd.mil/at
• Chairman, Joint Chiefs of Staff (CJCS)	http://dtic.mil/jcs
• CJCS Instruction 3170.01, Requirements Generation	http://www.dtic.mil/doctrine/jel/cjcsd/cjcsi/3170_01.pdf

Organization/Document	WWW Location
• Director, Program Analysis & Evaluation	http://www.pae.osd.mil
• Director, Operational Test & Evaluation	http://www.dote.osd.mil
• DoDD 5000.1 and DoD 5000.2-R	http://www.acq.osd.mil/api/asm/product.html
• Federal Acquisition Regulation (FAR)	http://www.ARNet.gov/far/
• Defense FAR Supplement (DFARS)	http://farsite.hill.af.mil/Vfdfar1.htm
• Integrated Product and Process Development, and Integrated Product Teams (IPPD and IPT)	http://www.acq.osd.mil/te/programs/se/ ippd/index.htm
• Joint Technical Architecture (JTA)	http://www-jta.itsi.disa.mil
• Joint Vision 2010	http://www.dtic.mil/doctrine/jv2010
• Title 10 (Armed Forces) United States Code	www4.law.cornell.edu/uscode/10/
• Office of the Secretary of Defense	http://defenselink.mil
• Under Secretary Of Defense (Acquisition and Technology), with links to his staff	http://acq.osd.mil/

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Multiple copies requested by government personnel must be purchased through the Government Printing Office (GPO) or the Defense Technical Information Center (DTIC)/National Technical Information Service (NTIS). Nongovernment personnel must purchase one or more copies through GPO. Each publication listed indicates where the publication is available and the stock numer. Publications without a stock number are available only through DSMC Publications Distribution Center.

GPO: (202) 512-1800 Mastercard and VISA are accepted
DTIC: (703) 767-8274 or DSN 427-8274
NTIS: 1-800-553-6847

PROGRAM MANAGEMENT

Acquisition Strategy Guide (3rd ed., 1998) GPO # 008-020-01440-6 ($7.00) / DTIC # ADA 339-007 ($6.00)

Congressional Involvement and Relations (1996) GPO # 008-020-01396-0 ($8.00) / DTIC # ADA 307-048 ($11.00)

Glossary of Defense Acquisition Acronyms and Terms (1998) GPO # 008-020-01459-1 ($14.00) / DTIC # ADA 328-573 ($11.00)

Guide for the Management of Multinational Programs (1987) DTIC # ADA 191-433 ($41.00)

Introduction to Defense Acquisition Management (1996) GPO # 008-020-01399-4 / DTIC # ADA 314-775 ($6.00)

Joint Logistics Commanders Guidance for Use of Evolutionary Acquisition Strategy to Acquire Weapons Systems (1998) GPO # 008-020-01363-3 ($3.50) / DTIC # ADA 296-175 ($6.00)

Joint Program Management Handbook (1996) GPO # 008-020-01405-2 ($5.50) / DTIC # ADA 286-784 ($11.00)

Program Manager's Tool Kit (1998) GPO # 008-020-01453-2 ($4.00) / DTIC # ADA 335-083 ($6.00)

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Effects of a Scale-down in Defense Budgets Vol I (1993) DTIC # ADA 285-597 ($6.00)

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Effects of a Scale-down in Defense Budgets Vol III (1995) DTIC # ADA 296-383 ($11.00)

Indirect Cost Management Guide (1997) DTIC #ADA 329-314 ($11.00)

ACQUISITION LAW

Streamlining Defense Acquisition Laws – Executive Summary: Report of the Acquisition Law Advisory Panel to the U.S. Congress (1993) DTIC # ADA 264-919 ($6.50)

GENERAL

Process Improvement: The DSMC Approach DTIC # ADA 300-815 ($11.00)

Skill in Communication (1990) DTIC # ADA 262-900 ($11.00)

MILITARY RESEARCH FELLOWS REPORTS

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Europe 1992 – Catalyst for Change in Defense Acquisition (1990) DTIC # ADA 228-710 ($11.00)

International Cooperation – The Next Generation (1991) DTIC # ADA 262-875 ($11.00)

NDI Acquisition: An Alternative to "Business as Usual" (1992) DTIC # ADA 262-877 ($11.00)

Virtual Prototyping – Concept to Production (1993) GPO # 008-020-01328-5 ($14.00) / DTIC # ADA 279-287 ($11.00)

Systems Acquisition Manager's Guide for the Use of Models and Simulations (1994) GPO # 008-020-01334-0 ($14.00) DTIC # ADA 285-573 ($11.00)

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Simulation Based Acquisition: A New Approach (1998) GPO #008-020-01461-3 ($9.50) / DTIC # ADA 359-264 ($11.00)

DEFENSE ACQUISITION CHART

Defense Systems Acquisition Management Process Chart (Corp 2008) (Sep 1993) GPO # 008-020-01305-6 ($1.50)

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Program Manager GPO Master Stock # 708-045-00000-4 Domestic $19.00/yr; Foreign $23.75/yr; U.S. Government order free through the DSMC Press (703) 805-3056

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This handbook is the third edition published by the Defense Systems Management College. Although the general format of the second edition has been retained, this version has been significantly revised to reflect the latest (March 1996) acquisition management policies and procedures, the Department of Defense (DoD) 5000 Documents.

This handbook is designed to be a quick study guide to refresh the skilled and experienced acquisition management professional; as well as a comprehensive introduction to the world of systems acquisition management for the newcomer. It focuses on Department of Defense-wide applications rather than on the details of how specific weapons (or Automated Information System (AIS)) programs are managed.

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