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ACQUISITION MANAGEMENT (LIFE CYCLE) PROCESS

All programs, including highly sensitive classified, cryptologic, and intelligence programs must accomplish certain activities. The framework in which these activities occur is called the Acquisition Life Cycle. The generic model for this process was introduced briefly in Chapter 3 and is graphically depicted in Figure 6-1.

The life cycle process consists of decision points, or milestones, and periods of time, or phases. The life cycle of a program begins with planning before the program is approved or officially begins (pre-Phase 0 activities), and takes the program through research, development, production, deployment, support, upgrade, and finally, demilitarization and disposal (post-Phase III activities). References to "life cycle" in the acquisition business, such as total life cycle costs (LCC) of developing, producing, deploying, supporting, and disposing of a sys-

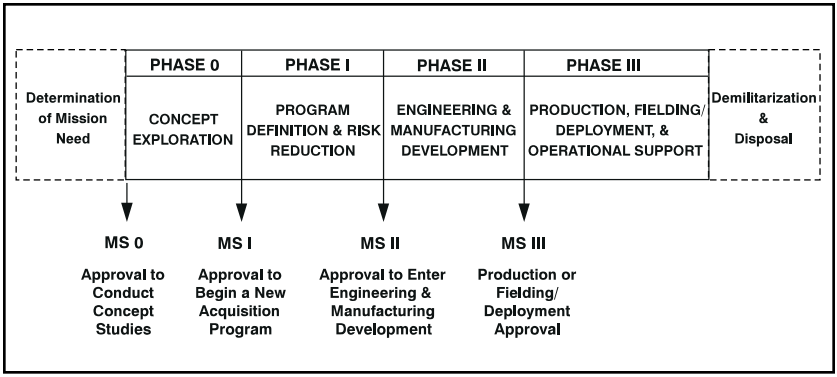

Figure 6-1. Acquisition Milestones and Phases

tem include all costs associated with the system, literally from "cradle to grave." Major defense systems may take from 12-15 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, or 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 12-15 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 program manager (PM) and senior officials in the service/agency, and Office of the Secretary of Defense (OSD) officials such as 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 major programs, monitor and administer progress, identify problems, and make corrections.

Note: Production, fielding/deployment, and operational support are all in one phase. Remember that the production of a system could last for many years, and that the support for a system must begin with initial system fielding and continue throughout the system's life. Modifications to a program may occur at any time, but are most prevalent during the production, fielding/deployment, and operational support phase. Any modification that could (by itself) qualify as an acquisition category (ACAT) I or ACAT IA program will generally be handled as a separate acquisition effort for management purposes. Modifications that do not exceed the ACAT I or ACAT IA dollar thresholds are considered to be part of the program being modified.

Most programs follow the process illustrated in Figure 6-1. 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 ACAT, risks, and the urgency of the user's need. Milestone decisions for major weapons programs are made by the USD(A&T) after program review by the respective Overarching Integrated Product Team (OIPT) and the Defense Acquisition Board (DAB). For major automated information systems (MAISs), the milestone decisions are made by the ASD(C^3I) following a review by the Information Systems OIPT and the Major Automated Information System Review Council (MAISRC).

Following is a brief discussion of each of the phases and milestones of the life cycle process model. Note that pre-Phase 0 activities, including the identification of deficiencies and determination of mission needs, were discussed in Chapter 5.

Milestone 0, Approval to Conduct Concept Studies. Authorizes entry into concept exploration (CE) (Phase 0). The Milestone Decision Authority (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), validates the mission need in compliance with Department of Defense Directive (DoDD) 8000.1, and the ASD(C^3I) convenes a Milestone 0 MAISRC. Milestone 0 decisions for potential less-than major defense acquisition programs (MDAPs) are

made by the respective Component Acquisition Executive (CAE). For potential less-than major automated information system (MAIS) acquisition programs, the Milestone 0 decision is made by the service or component chief information officer (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. 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 acquisition strategy and concept baseline are approved. Exit criteria that must be accomplished during Phase I are established, and Cost as an Independent Variable (CAIV) objectives are identified.

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 is possible. Phase I is typically 2-3 years in duration, although programs involving prototype development can spend 5 years or longer in this phase (e.g., Air Force's Advanced Tactical Fighter). Cost drivers, cost-performance trades, interoperability, and acquisition strategy alternatives are considered, to include evolutionary and incremental software development.

Milestone II, Approval to Enter Engineering and Manufacturing Development (EMD). Approves entry into EMD (Phase II). The acquisition strategy, development baseline, and CAIV objectives (revised, as required) are approved. Exit criteria that must be accomplished during Phase II are established and low rate initial production (LRIP) quantities are identified.

Phase II, Engineering and Manufacturing Development (EMD). Phase II 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 test and evaluation (DT&E) to ensure specifications are met, and operational test and evaluation (OT&E) to ensure the system is operationally effective and operationally suitable. Following a favorable decision, LRIP (if it is a part of the program acquisition strategy) begins.

Milestone III, Production or Deployment Approval. Approval for entry into production for a MDAP and into deployment for an ACAT IA program. Acquisition strategy and production baseline are approved. Exit criteria that must be accomplished during Phase III are established. Initiation of full rate production will be based on further approval from the MDA. **Note** that for ACAT ID programs, there is normally only one production decision (i.e., low-rate or full-rate) at the DAB level.

Phase III, Production, Fielding/Deployment, and Operational Support. This phase often overlaps Phase II, especially in cases where LRIP is a part of the program acquisition strategy. The system is produced and delivered (along with support infrastructure) to the field for operational use. Follow-on Operational Test and Evaluation (FOT&E) may be conducted, to assess performance and quality, compatibility, and interoperability. System status is monitored to ensure the system continues to meet the user's needs. During deployment and throughout operational support, the potential for modifications to the fielded system continues. Modifications that are of sufficient cost and complexity to qualify as ACAT I or ACAT IA programs may be managed as separate acquisition efforts. 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. 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.