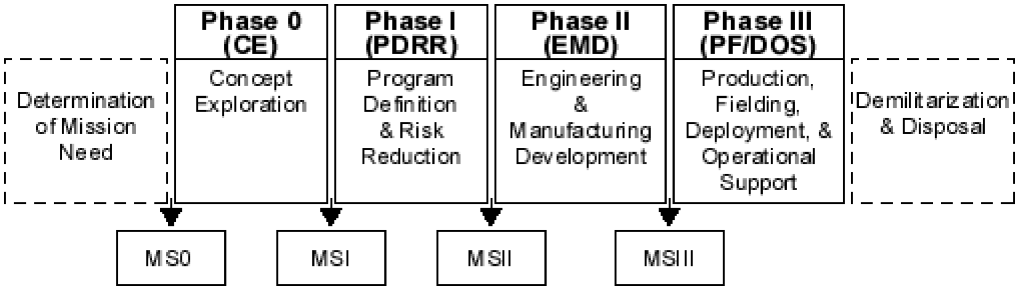
REVIEW RESOURCES

Lesson 3: Systems Acquisition Management: Introduction to the Acquisition Life Cycle

What Is the Acquisition Life Cycle?

The Acquisition Life Cycle consists of sequential phases separated by decision points called Milestones. Each phase contains specific activities based on how much risk is associated with the system to be acquired. Not all phases are required for every program.



Back to Topics List Back to Top

Determination of Mission Need

While not a formal phase of the life cycle, this preliminary activity is called the "Determination of Mission Need." During this period, mission needs or requirements are established by the Services, Defense Agencies, or Commanders in Chief (CINCs) of the Unified Commands. These individuals are commonly referred to as "the users."

Analysis of Non-Materiel Solutions

During the Determination of Mission Need, non-materiel solutions, such as changing tactics or training, are considered before DOD decides to spend money to develop or buy new systems.

Mission Need Statement (MNS)

When non-materiel approaches are not feasible, the user describes the requirement for a materiel solution in a document called a Mission Need Statement. A Mission Need Statement (MNS) is a non-system-specific statement of operational capability need prepared in accordance with CJCSI 3170.01.

Before the MNS is submitted to the acquisition community, the user's chain of command must first validate and approve the requirement.

Back to Topics List Back to Top

Milestone 0 Review

The acquisition community holds a Milestone 0 Review to formally accept the MNS for study and determine what minimum number of alternatives should be considered. A formal memo, called an Acquisition Decision Memorandum (ADM), is written to document approvals to proceed to the next phase of the acquisition life cycle.

Back to Topics List Back to Top

Concept Exploration—Phase 0

After Milestone 0 Review, the Concept Exploration (CE) Phase begins. During this phase an Analysis of Alternatives (AoA) is conducted. The AoA provides data for selecting the conceptual approach that will satisfy the mission needs in the most cost-effective manner.

During CE, the main activity is conducting studies to analyze the proposed concepts. Contractors and/or Government laboratories help conduct this phase. The Government tries to keep an open mind, looking at all reasonable alternatives industry has to offer.

Back to Topics List Back to Top

Operational Requirements Document

Based on the results of these studies, the user prepares an Operational Requirements Document (ORD). An ORD documents the user's thresholds (minimum acceptable value) and objectives. It also provides system-specific requirements such as range, speed of data transmission, and reliability.

Back to Topics List Back to Top

Milestone I Review

The ORD, study results, and additional information from the Concept Exploration Phase are packaged in one or more documents for the Milestone Decision Authority (MDA). The MDA holds a Milestone I Review to formally consider the request to initiate a new acquisition program. The MDA writes an Acquisition Decision Memorandum documenting approval to proceed to the next life-cycle phase.

Back to Topics List Back to Top

Program Definition and Risk Reduction—Phase I

The focus of the Program Definition and Risk Reduction (PDRR) phase is to demonstrate and validate that the technological capability is achievable within the required timeframe and within available resources. The major activities conducted during this phase include:

- Verifying the preliminary design and engineering approach.
- Designing subsystems.
- Building models and prototypes.
- Testing and evaluating subsystems (referred to as developmental testing and evaluation).
- Analyzing tradeoffs in depth.
- Planning future efforts.

Major Activities of the PDRR Phase

During the PDRR phase:

- Risks (i.e., technical, cost and schedule) associated with the effort are identified and strategies are generated for addressing those risks.
- A request for proposals (RFP) is issued soliciting proposals for implementing the selected concept.
- The contractor(s) with the best-value proposal(s) is/are selected to implement the chosen concept.

Back to Topics List Back to Top

Milestone II Review

MDA holds a Milestone II Review to determine readiness to proceed to Engineering and Manufacturing Development (EMD). The MDA then writes an Acquisition Decision Memorandum approving entry into the next life-cycle phase where a contract is issued for the development of the system.

Back to Topics List Back to Top

Engineering and Manufacturing Development—Phase II

The primary focus of the EMD phase is on finalizing the system design and ensuring that manufacturing processes are ready for full-scale production. During the EMD phase:

- System/equipment and support items are fully developed, engineered, designed, and fabricated.
- Developmental tests and evaluations (DT&E) are conducted to ensure that specifications are met.
- Operational tests and evaluations (OT&E) are conducted to ensure the system is effective and suitable for the users in an operational environment.

During the Engineering and Manufacturing Development phase, conducting a Low Rate Initial Production (LRIP) may be requested. LRIP Quantities are the minimum number of systems (other than ships and satellites) to:

- Provide production representative articles for OT&E.
- Establish the initial production base.
- Permit an orderly increase in production rate sufficient to lead to full-rate production upon successful completion of operational testing.

Back to Topics List Back to Top

Milestone III Review

MDA holds a Milestone III Review to determine if the system is ready for full-rate production. MDA then writes an Acquisition Decision Memorandum approving entry into the next life-cycle phase where the system is manufactured in quantity and sent to the users.

Back to Topics List Back to Top

Production, Fielding/Deployment, and Operational Support—Phase III

The primary focus of the PF/DOS phase is on manufacturing the system in quantity; fielding/deploying the system to the users; and training personnel to operate and maintain the system. Major activities include:

- Operational and support systems are procured and put into place.
- Items are manufactured.
- Operational units are trained.
- Systems are fielded/deployed to the users.

Follow-On Testing and Evaluation

It is critical to continue testing and evaluating the system throughout its life. Continued testing may find that there is a need to modify the system to make it more efficient, effective, or durable. Small modifications and upgrades are accomplished through the following means:

- Engineering Change Proposal (ECP)
  An Engineering Change Proposal goes to the responsible authority recommending that a change to an original item of equipment be considered, and the design of engineering change be incorporated into the article to modify, add to, delete, or supersede original parts.

- Preplanned Product Improvement (P3I)
  Preplanned Product Improvement is planned future evolutionary improvement of developmental systems for which design considerations are effected during development to enhance future application of projected technology. P3I includes improvements planned for ongoing systems that go beyond the current performance envelope to achieve a needed operational capability.

- Service Life Extension Program (SLEP)
  A Service Life Extension Program details modifications to fielded systems undertaken to extend the life of the system beyond what was previously planned.

Back to Topics List Back to Top

Demilitarization and Disposal

Demilitarization and disposal occurs at the end of the system's useful life. During this time in the system's life cycle, the Program Manager must ensure that the material requiring demilitarization is controlled and disposal minimizes DOD's liability on environmental, safety, security, and health issues.

Back to Topics List Back to Top

Life Cycle Summary Concepts

This section presents the following three concepts: tailoring, milestone reviews, and main activities.

Life-Cycle Summary Concepts—Tailoring

There are many variations on the acquisition life-cycle model. A program should not include an acquisition phase unless it is necessary to reduce risk. Instead, the acquisition strategy is "tailored" to fit the needs of the program.

Phases can be combined or skipped if something has already been developed and is a nondevelopmental item or if technical maturity is sufficient.

Life-Cycle Summary Concepts—Milestone Reviews

Throughout the acquisition life cycle the participants must assess whether or not to proceed with the program. At a milestone review, the Milestone Decision Authority considers these three questions:

- Does past performance (i.e., test results, studies, and assessments) warrant proceeding to the next phase?
- Are plans for the future feasible?
- What are the potential risks to the program and how should we deal with those risks?

Life-Cycle Summary Concepts—Main Activities

Regardless of the number of phases a program has, each phase involves the following three main activities:

- Work is performed.
- Information is generated and shared.
- Reviews and meetings track progress and issue direction.

Specific activities vary depending on which phase a program is in.

Back to Topics List Back to Top

What Is an Acquisition Program Baseline?

DOD 5000.2-R states that every acquisition program shall establish an acquisition program baseline (APB) to document the cost, schedule, and performance thresholds and objectives of that program beginning at program initiation. Everyone in the program's chain of authority commits to meeting the cost, schedule, and performance thresholds and objectives established in the APB.

The APB is a formal agreement created and signed by the Program Manager and those in the chain of authority up to the Milestone Decision Authority.

Back to Topics List Back to Top

What Are Exit Criteria?

Exit criteria are program-specific accomplishments that must be satisfactorily demonstrated before an effort or program can progress further in the current acquisition phase, or transition to the next acquisition phase. Typically, exit criteria require that the demonstration of a level of performance be documented.

For each life-cycle phase, exit criteria are:

- Formulated by appropriate Integrated Product Teams (IPTs).
- Proposed by the Program Manager at the end of the previous phase.
- Included in the Acquisition Decision Memorandum signed by the Milestone Decision Authority.

Back to Topics List Back to Top

What Is an Acquisition Strategy?

An Acquisition Strategy is a business and technical management approach designed to achieve

program objectives within the resource constraints imposed. The Program Manager prepares an acquisition strategy that encompasses the entire system life cycle, from program initiation through production, fielding/deployment, and operational support. The acquisition strategy is approved through the acquisition chain of command and is updated as more is learned about the system, as well as for each milestone review.

An acquisition strategy provides:

- A foundation for planning, directing, contracting for, and managing a program.
- A master schedule for research, development, test, production, fielding, modification, postproduction management, and other activities essential for a program's success.
- A unique, tailored, top-level master plan that guides the entire program.

Tailoring the Acquisition Strategy

When it comes to acquisition strategies, no one size fits all. Each strategy is tailored to fit the unique technical, resource, and fiscal constraints of a program. Program structure charts are used to graphically depict the key elements of each acquisition strategy.

Traditional Development Acquisition

In the conventional approach, all four phases are conducted and separated by milestone reviews. Expect to use this acquisition strategy with a technically complex program, such as peacekeeper missile, F-22 fighter, or M1A1 tank.

Mature Technology Acquisition

In this approach, there is no need for PDRR because the technology is already proven. Milestones 0, I, and II are combined. As a result, the program moves directly to EMD. Examples include F-15 upgrade programs and F-18 upgrade programs.

Nondevelopmental Item (NDI) Acquisition

If a nondevelopmental item is acquired, PDRR and EMD do not need to be conducted. The program will skip Milestones I and II, and go right to production after CE. This acquisition strategy was used to acquire 9mm handguns.

Back to Topics List Back to Top