Department of Defense
INSTRUCTION

NUMBER 5000.2
April 5, 2002

USD(AT&L)

SUBJECT: Operation of the Defense Acquisition System

References:

(a) DoD Instruction 5000.2, "Operation of the Defense Acquisition System" (hereby canceled)
(b) DoD Directive 5000.1, "The Defense Acquisition System," October 23, 2000
(c) OMB Circular A-11, Part 3, July 1999 and "Supplemental Capital Programming Guide: Planning, Budgeting, and Acquisition of Capital Assets," July 1997
(d) DoD 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs," April 5, 2002
(e) DoD 5025.1-M, "DoD Directives System Procedures," current edition
(f) through (az), see enclosure 1

1. PURPOSE

This Instruction:

1.1. Reissues reference (a) and establishes a simplified and flexible management framework for translating mission needs and technological opportunities, based on validated mission needs and requirements, into stable, affordable, and well-managed acquisition programs that include weapon systems and automated information systems.

1.2. Establishes a general approach for managing acquisition programs while acknowledging that every technology project and acquisition program is unique and that any particular project or program, particularly non-major programs, may not need to follow the entire process.

1.3. Consistent with statutory requirements and DoD Directive 5000.1 (reference (b)) authorizes Milestone Decision Authorities (MDAs) to tailor procedures in order to achieve cost, schedule, and performance goals.

1.4. Implements reference (b), the guidelines of OMB Circular A-11, Part 3 (reference (c)), current laws, and the procedures in DoD 5000.2-R (reference (d)).

1.5. Authorizes the publication of reference (d), which establishes procedures to be followed for Major Defense Acquisition Programs (MDAPs), Major Automated Information Systems (MAISs), and those non-major systems specifically identified in reference (d) in accordance with DoD 5025.1-M (reference (e)).

1.6. Cancels reference (f).

2. APPLICABILITY AND SCOPE

This Instruction applies to:

2.1. The Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, DoD Field Activities, and all other organizational entities within the Department of Defense (hereafter referred to collectively as "the DoD Components").

2.2. All defense technology projects and acquisition programs. Some requirements, where stated, apply only to MDAPs and MAISs.

2.3. In general, highly sensitive classified, cryptologic, and intelligence projects and programs shall follow the guidance in this Instruction and reference (d) for technology projects and acquisition programs of equivalent acquisition category. The MDA shall approve proposed tailoring of the systems acquisition process for these projects and programs.

3. DEFINITIONS

Terms used in this Instruction are defined in enclosure 2.

4. PROCEDURES

4.1. MDAs shall establish mandatory procedures for assigned programs. These procedures shall not exceed the requirements for MDAPs and MAIS acquisition programs established in this Instruction or in reference (d). The Heads of the DoD Components shall keep the issuance of any directives, instructions, policy memorandums, or regulations necessary to implement the mandatory procedures contained in this Instruction and reference (d) to a minimum. The Heads of the DoD Components shall provide copies of all such documents to the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) PRIOR TO publication. Waivers or requests for exceptions to the provisions of this Instruction shall be submitted to the USD(AT&L), Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD(C3I)), or Director of Operational Test and Evaluation (DOT&E), as

appropriate via the Component Acquisition Executive (CAE). Statutory requirements cannot be waived unless the statute specifically provides for waiver of the stated requirements.

4.2. The DoD Components (including Office of the Secretary of Defense (OSD) staff offices) shall coordinate proposed policy memorandums and changes to individual sections of this Instruction or reference (d) with the Executive Secretary of the Defense Acquisition Policy Steering Group (DAPSG) (reference (g)) prior to Department-wide staffing of the change. The purpose of this policy is to maintain administrative control of this Instruction and is not intended to imply any approval authority on the part of the Executive Secretary.

4.3. The DAPSG shall submit proposed changes to the USD(AT&L), ASD(C3I), and DOT&E, who jointly have the authority to change this Instruction. All three officials shall jointly sign future changes. Proposed changes shall be considered annually by the Defense Acquisition Policy Working Group (DAPWG). See reference (g).

4.4. This Instruction and references (b) and (d) are located in the Reference Library of the Defense Acquisition Deskbook (reference (h)). Mandatory and discretionary acquisition information, practical advice, and lessons learned are also located in the Deskbook.

4.5. Implementation of the New Acquisition Process

4.5.1. New Milestones. Programs planned in accordance with the 1996 version of DoD Directive 5000.1 and the 1996 version of DoD 5000.2-R shall be executed in accordance with approved program documentation. That documentation shall not be updated solely to satisfy the requirements of this Instruction. Unless otherwise directed by the MDA, the new decision points and phases in this Instruction shall be applied to efforts that have not yet been approved as acquisition programs (usually pre-Milestone I), and to acquisition programs that are pre-Milestone II. Unless otherwise directed by the MDA, the new decision points and phases shall not be applied to acquisition programs that are post-Milestone II.

4.5.2. Policies and Procedures. The new policies and procedures in this Instruction shall be applied to acquisition efforts that have not yet been approved as acquisition programs, and to all acquisition programs, including those planned in accordance with the 1996 version of DoD Directive 5000.1 and DoD 5000.2-R.

4.5.3. Compliance with Statutes. For purposes of complying with applicable laws, Milestone A will serve as Milestone 0; Program Initiation, when it occurs at or during Component Advanced Development, will serve as Milestone I; Milestone B will serve as Milestone II; Milestone C will serve as the Low-Rate Initial Production decision point; and the Full-Rate Production Decision Review will serve as Milestone III. In addition, System Development and Demonstration will serve as Engineering and Manufacturing Development.

4.6. Characteristics of the Defense Acquisition System. Successful Department of Defense acquisition is dependent on smooth integration of the three principal decision systems in the Department and on attention to critical key capability enablers.

4.6.1. Integrated Management Framework. The policies in this Instruction are intended to forge a close and effective interface among the Department's principal decision support systems: the Requirements Generation System, the Defense Acquisition System, and the Planning, Programming, and Budgeting System.

4.6.1.1. Requirements Generation System. The Requirements Generation System (reference (i)) produces information for decision-makers on the projected mission needs of the user. The user defines mission needs in broad operational terms and then evolves the needs to specific operational requirements. (See subparagraph 4.7.2.1, below.) The Joint Requirements Oversight Council (JROC), or other appropriate requirements authority, validates and approves the mission need, confirms the fact that a non-materiel solution alone cannot satisfy the identified need, and identifies that a potential new concept or system materiel solution should be considered.

4.6.1.2. Defense Acquisition System

4.6.1.2.1. The Defense Acquisition System establishes a management process to translate user needs (broadly stated mission needs responding to a postulated threat and developed in the Requirements Generation System or business needs responding to new ways of doing business and developed by the appropriate staff office) and technological opportunities (developed or identified in the Science and Technology program based on user needs) into reliable and sustainable systems that provide capability to the user.

4.6.1.2.2. The Defense Acquisition System is a continuum composed of three activities with multiple paths into and out of each activity. Technologies are researched, developed, or procured in pre-system acquisition (science and technology and concept development and demonstration). Systems are developed, demonstrated, produced or procured, and deployed in systems acquisition. The outcome of systems acquisition is a system that represents a judicious balance of cost, schedule, and performance in response to the user's expressed need; that is interoperable with other systems (U.S., Coalition, and Allied systems, as specified in the operational requirements document); that uses proven technology, open systems design, available manufacturing capabilities or services, and smart competition; that is affordable; and that is supportable. Once deployed, the system is supported throughout its operational life and eventual disposal in post-systems acquisition using prudent combinations of organic and contractor service providers, in accordance with statutes.

4.6.1.3. Planning, Programming, and Budgeting System. The Planning, Programming, and Budgeting System (PPBS) (reference (j)) provides for a cyclic process that provides the operational commanders-in-chief the best mix of forces, equipment, and support attainable within fiscal constraints.

4.6.1.4. Integrated Reviews. As new ways of using technology development, evolutionary acquisition, and interoperability permeate the acquisition process, the Department of Defense must increasingly review programs on a family-of-systems basis, as well as conduct mission area reviews. The objective of these more comprehensive reviews is to better reconcile requirements, resources, and programs to support the goals of cost-effectiveness and

interoperability and to assess where limited resources are best spent. A number of existing mechanisms support such objectives, including front-end assessments, mission area assessments, and special studies. Any of these mechanisms, or others, may be used to conduct family-of-systems and mission area reviews on a selective basis to support requirements, acquisition, and budget decisions.

4.6.2. Key Capability Enablers. To meet operational requirements for Joint, Combined, and Coalition military missions across warfighting to peace-keeping spectrums, all systems and families-of-systems must be designed, developed, tested, and supported to ensure protection of Critical Program Information, information superiority and interoperability.

4.6.2.1. Critical Program Information.

4.6.2.1.1. Critical Program Information (CPI) is program information, technologies, or systems that, if compromised, would degrade combat effectiveness, shorten the expected combat effective life of the system, or significantly alter program direction. This includes classified military information or Controlled Unclassified Information (CUI) about such program information, technologies, or systems.

4.6.2.1.2. The identification of sensitive information and technologies, both classified and unclassified, shall be accomplished early in the development and acquisition process. The process shall include decisions on the protection of this information, as well as its transfer to foreign governments and foreign contractors in support of cooperative programs, multinational operations, foreign contracting, and foreign sales. This information shall be reassessed at each milestone decision point. See DoD Directive 5200.39 (reference (k)) and DoD Directive 5230.11 (reference (l)) for additional guidance.

4.6.2.2. Information Superiority

4.6.2.2.1. Information superiority is defined as the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same. Information superiority is achieved in a non-combat situation or one in which there are no clearly defined adversaries when friendly forces have the information necessary to achieve operational objectives.

4.6.2.2.2. Forces will attain information superiority through the acquisition of systems and families of systems that are secure, reliable, interoperable, and able to communicate across a universal information technology (IT) infrastructure, to include national security systems (NSS). This IT infrastructure includes the data, information, processes, organizational interactions, skills, and analytical expertise, as well as systems, networks, and information exchange capabilities.

4.6.2.2.3. For the DoD Components to provide these capabilities in a cost-effective manner, they must identify and evaluate IT (including NSS) infrastructure and supportability and interoperability from the beginning of each program's life cycle. This identification shall include appropriate system and family of systems requirements associated

with critical infrastructure protection, information assurance, space control, and related missions that are consistent with DoD policies, standards (e.g., the Joint Technical Architecture), and mission-area integrated architectures. In addition, the evaluation of IT (including NSS) supportability and interoperability shall be documented in the Command, Control, Communications, Computers, and Intelligence Support Plan (C4ISP) (reference (d)). The results of this planning shall be discussed in the system acquisition strategy.

4.6.2.2.4. All programs shall be managed and engineered using best processes and practices to reduce security risks; ensure programs are synchronized; be designed to be mutually compatible with other electric or electronic equipment and the operational electromagnetic environment; identify Critical Program Information that requires protection to prevent unauthorized disclosure or inadvertent transfer of leading-edge technologies and sensitive data or systems; require hardening, redundancy, or other physical protection against attack; be certified for spectrum supportability; and comply with the provisions of the Clinger-Cohen Act (CCA) (reference (m)). Requirements for data structure and quality of information that support DoD Information Superiority objectives are defined in DoD Directive 8000.1 (reference (n)) and DoD Directive 8320.1 (reference (o)). Policy and process for ensuring information interoperability of IT (including NSS) is prescribed in DoD Directive 4630.5 (reference (p)) and DoD Instruction 4630.8 (reference (q)).

4.6.2.3. Interoperability

4.6.2.3.1. Interoperability is the ability of systems, units, or forces to provide data, information, materiel, and services to and accept the same from other systems, units, or forces, and to use the data, information, materiel, and services so exchanged to enable them to operate effectively together. The use of mission area (i.e., joint mission area and/or business/administrative mission areas) integrated architectures shall characterize IT, including National Security System (NSS), interoperability requirements. The Joint Operational Architecture and the Joint Technical Architecture shall serve as the foundation for development of the mission area integrated architectures. Mission area integrated architectures shall relate IT, including NSS, interoperability requirements in a family-of-systems mission area context. The user shall derive IT, including NSS, family-of-systems information exchange requirements (IERs) from the operational IER of the mission area integrated architecture. During the requirements generation process, users shall develop interoperability key performance parameter (KPP) in accordance with Chairman of the Joint Chiefs of Staff (CJCS) Instruction 3170.01B (reference (i)) and CJCS Instruction 6212.01B (reference (r)) for all Capstone Requirements Documents (CRDs) and Operational Requirements Documents (ORDs). Interoperability needs shall be addressed as part of the Mission Need Statement (MNS) constraint section. Interoperability constraints will form the basis for the CRD and ORD interoperability KPPs. For the acquisition community, the interoperability requirements established in the requirements process shall be allocated from the requirements documents to the individual systems through the system engineering process.

4.6.2.3.2. Interoperability requirements shall be addressed in the C4ISP (reference (d)) and in integration plans for non-information interoperability requirements. The results of this planning shall be discussed in the system acquisition strategy.

4.6.2.3.3. The MDA shall make decisions on individual programs in the context of the family of systems. Those decisions shall be supported by the information provided by the Program Manager (PM) in the acquisition strategy.

4.6.2.3.4. The DOT&E shall consider interoperability as part of all early operational assessments, initial operational test and evaluations, and test plans to ensure interoperability is adequately tested and evaluated.

4.6.2.3.5. In view of their importance in achieving interoperability, the DoD Components shall fully fund their share of approved joint and international cooperative program commitments. In situations where joint and international cooperative programs will not be fully funded, the DoD Components shall follow the procedures in reference (d).

4.7. The Defense Acquisition Management Framework

4.7.1. General

4.7.1.1. All projects and programs, including highly sensitive classified, cryptologic, and intelligence projects and programs, shall accomplish activities described in this Instruction and reference (d) (for MDAPs, MAISs, and non-major systems as specified in the Regulation). How these activities are conducted shall be determined on a project-by-project or program-by-program basis through Integrated Product Teams (IPTs) and Integrated Product and Process Development (IPPD). How these activities are conducted shall be tailored to minimize the time it takes to satisfy an identified need consistent with common sense and sound business practice.

4.7.1.2. Extensive use of modeling, simulation, and analysis should be used throughout the acquisition process to integrate the activities of the principal decision support systems by creating information for decision-makers. Modeling and simulation (M&S) is useful in representing conceptual systems that do not exist and extant systems that cannot be subjected to actual environments because of safety requirements or the limitations of resources and facilities. The Program Manager should plan for the integrated use of M&S that maximizes the use of existing M&S before developing program unique products.

4.7.1.3. Development and procurement of a system is not the only type of solution that can satisfy a mission need. Procurement of services shall be considered as a way of meeting the operational requirements at a reasonable cost to the Department of Defense.

4.7.1.4. At each milestone review, the MDA shall assess the opportunities for cooperative development or procurement. The MDA shall make this assessment based on an assessment of whether or not a project or program similar to the one under consideration is in development or production by one or more major allies or NATO organizations; if such a project or program exists, determining if that project could satisfy, or be modified in scope to satisfy, U.S. military requirements; and assess the advantages and disadvantages with regard to program

timing, developmental and life-cycle costs, technology sharing, and interoperability with one or more major allies or NATO organizations.

4.7.1.5. Throughout the life of a technology project, service contract, or acquisition program, cost-effective competition (at both the prime and sub-contractor levels) shall be maintained to the maximum extent practical by means of either head-to-head competition, competition of alternative ways to meet the mission need, reliance on market surveys for commercial alternatives, or changing requirements (through the process of cost and performance trades) to allow increased competition. This competition for best value to the Department of Defense shall be identified in the acquisition strategy. Wherever possible and appropriate, performance- and price-based acquisition methods should be used. The benefits of long-term contracting shall be explored. Contractors shall be encouraged to submit realistic cost proposals, including fair and reasonable profit or fee amounts. "Buy-ins" shall be discouraged because they may decrease competition or lead to poor contract performance. Cost proposals shall be evaluated to ensure cost-realism in accordance with the Federal Acquisition Regulation (reference (s)). Costs shall be tested to ensure cost-realism (based on knowledge gained during the acquisition process). Acquisitions shall be structured in such a way that undue risk (such as through the use of firm fixed price options that cover more than 5 years) is not imposed on contractors, and so that contractor investment (beyond normal working capital and investments for plant, equipment, etc.) is not required. Contractors should not be encouraged or required to invest their profit dollars or independent research and development funds to subsidize defense research and development contracts, except in unusual situations where there is a reasonable expectation of a potential commercial application. Contractors are entitled to earn reasonable rewards on DoD contracts, including competitively awarded contracts. Financially sound companies are able to attract the resources and talent necessary to provide best-value solutions to the Department's needs. If competition is not available, PMs shall devise incentives to motivate contractors in a way that will yield the benefits of competition. These benefits include innovation, improved product quality and performance, increased efficiency, and lower costs.

4.7.1.6. Programs entering system acquisition will comply with requirements governing new starts (reference (j)).

4.7.1.7. At each Milestone and at the Full-Rate Production Decision, the MDA has the option to continue the project or program, modify the project or program, terminate the project or program, or proceed into the next phase. The MDA may hold other reviews to adjust plans, review progress, or determine how to proceed to production.

4.7.1.8. While a materiel alternative may enter acquisition at multiple points, the appropriate point is guided by the ability to satisfy stated entrance criteria, the content of each work effort within a phase, and the considerations at each milestone. Entrance criteria are minimum accomplishments required to be completed by each program prior to entry into the next phase or work effort.

4.7.1.9. There is no one best way to accomplish the objectives of the Defense Acquisition System. Proposed programs, for example, may enter the acquisition process at various decision points, depending on concept and technological maturity. Decision-makers and

Program Managers shall tailor acquisition strategies to fit the particular conditions of an individual program, consistent with common sense, sound business management practice, applicable laws and regulations, and the time-sensitive nature of the user's requirement. Tailoring shall be applied to various aspects of the Acquisition system, including program documentation, acquisition phases, the timing and scope of decision reviews, and decision levels. Milestone decision authorities shall promote flexible, tailored approaches to oversight and review based on mutual trust and a program's dollar value, risk, and complexity.

4.7.1.10. A graphic representation of the Defense acquisition management framework is shown in Figure F1. The framework is divided into three activities (e.g., Systems Acquisition). Activities are divided into phases (e.g., System Development and Demonstration). Phases are divided into work efforts (e.g., System Integration). The remainder of this section will discuss each aspect of the framework.

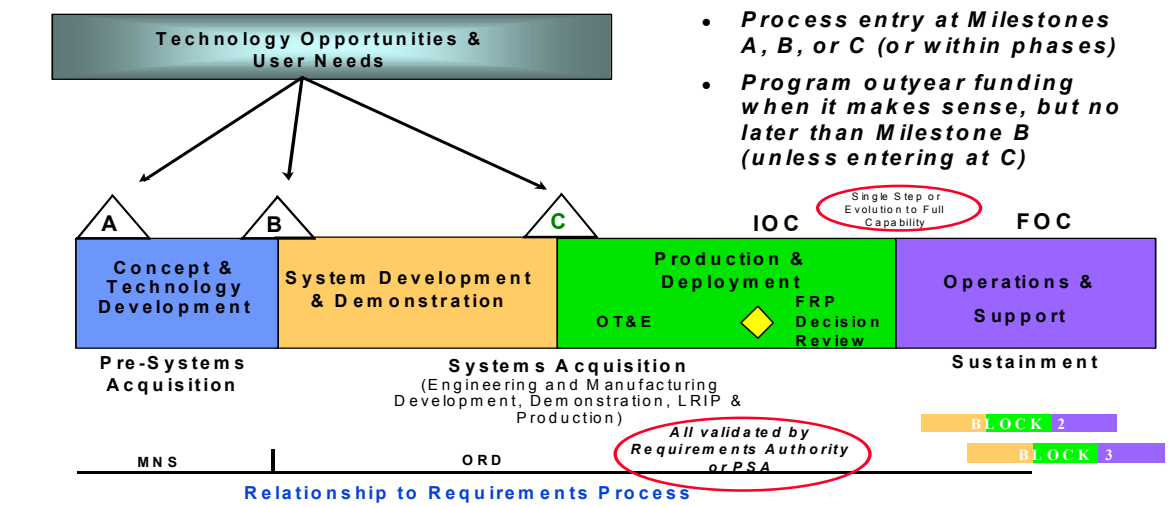
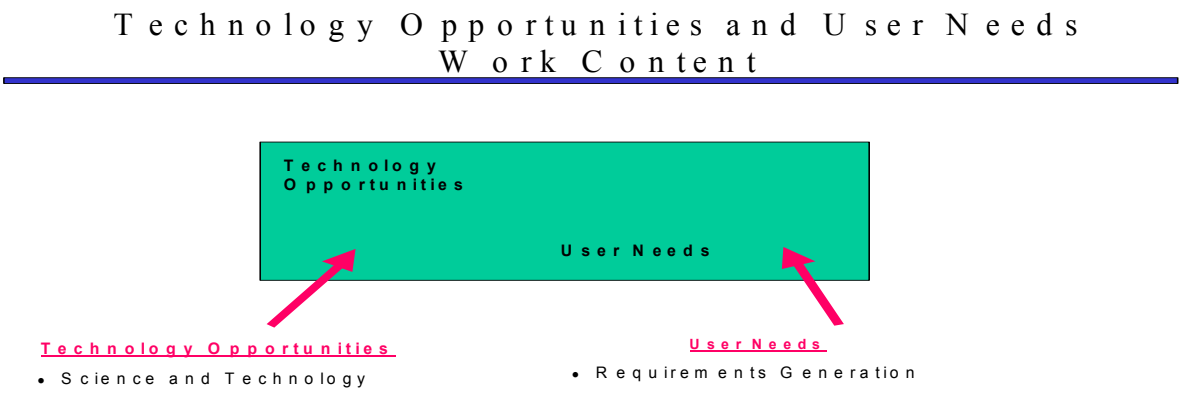


Figure F1.

4.7.2. Pre-Systems Acquisition. Pre-system acquisition is composed of on-going activities in development of user needs, in science and technology, and in concept development work specific to the development of a materiel solution to an identified, validated need. The responsible authority outside of this Instruction defines policies and directives for development of user needs and technological opportunities in science and technology.

Figure F2.



4.7.2.1. User Need Activities. The MNS shall identify and describe the projected mission needs of the user in the context of the threat to be countered or business need to be met. The user representative, with support from the operational test and evaluation community, develops the needs expressed in the MNS into requirements in the form of CRDs (if applicable) and ORDs. CRDs contain capabilities-based requirements that facilitate the development of individual ORDs by providing a common framework and operational concept to guide their development. The CRD is an oversight tool for overarching requirements for a family of systems (reference (i)). Validated ORDs translate the MNS and, if applicable, CRDs into broad, flexible, and time-phased operational goals that are further detailed and refined into specific operational capability requirements contained in the final ORD at System Demonstration. The appropriate requirements authority shall validate all MNSs, CRDs, and ORDs.

4.7.2.1.1. In the process of refining requirements, the user shall adhere to the following key concepts (in accordance with reference (i)):

4.7.2.1.1.1. Keep all reasonable options open and facilitate cost, schedule, and performance trades throughout the acquisition process.

4.7.2.1.1.2. Avoid early commitments to system-specific solutions, including those that inhibit future insertion of new technology and commercial or non-developmental items.

4.7.2.1.1.3. Define requirements in broad operational capability terms.

4.7.2.1.1.4. Develop time-phased requirements with associated objectives and thresholds (as appropriate).

4.7.2.1.1.5. Evaluate how the desired performance requirements could reasonably be modified to facilitate the potential use of commercial or non-developmental items and components.

4.7.2.1.1.6. Evaluate whether the system will be able to survive and operate through the anticipated threat environment.

4.7.2.1.1.7. Consider Critical Program Information needs, anti-tamper, and intelligence support requirements.

4.7.2.1.1.8. Address cost in the ORD, in terms of a threshold and objective.

4.7.2.1.1.9. Include requirements for security, information assuredness, and critical infrastructure protection with consideration of releasability criteria for multinational operational environments.

4.7.2.1.1.10. Consider supportability, data sharing, and interoperability needs of the family of systems in the operational environment.

4.7.2.1.1.11. Mandate interoperability as a key performance parameter (KPP) to be documented in all ORDs and CRDs (reference (i)) and included in the Acquisition Program Baseline (APB) (reference (d)).

4.7.2.1.2. For purposes of interoperability and supportability, all IT (including NSS) acquisition programs regardless of acquisition category, developed for use by U.S. forces are for joint, combined, and coalition use. The intent is to develop, acquire, and deploy IT that meet essential operational needs of U.S. forces. Interoperability and integration of IT requirements shall be determined during the requirements validation process by the DoD Components and Joint Staff (through review of all MNSs and ORDs) and shall be updated as necessary throughout the acquisition, deployment, and operational life of a system. Given the potential joint nature of AISs, all AIS MNSs and ORDs shall be submitted to the Joint Staff in accordance with CJCS Instruction 3170.01B (reference (i)) to determine if there is JROC special interest.

4.7.2.1.3. The CJCS shall establish procedures for the development, coordination, review, and validation of interoperability and supportability requirements for IT (including NSS) acquisition programs, regardless of acquisition category. The Chairman shall approve, document, and exercise doctrinal concepts and associated operational procedures to achieve interoperability and supportability of IT (including NSS) acquisition programs employed by U.S. forces and with coalition and allied forces. The Chairman has established procedures for ensuring compliance with certification of joint interoperability of IT (including NSS) acquisition programs throughout their life cycle and ensure that the Directors of the Defense Agencies are included in the review process (reference (r)).

4.7.2.1.4. The user or user's representative shall work with the Program Manager or other system developer (e.g., the Demonstration Manager for Advanced Concept and Technology Development projects) to establish and refine cost as an independent variable (CAIV)-based cost and performance objectives and critical schedule dates. The CAIV-based parameters and critical schedule dates shall also be included in the APB.

4.7.2.2. Materiel Acquisition Requirement Questions. Before proposing a new acquisition program, DoD Components shall affirmatively answer the following questions:

4.7.2.2.1. Does the acquisition support core/priority mission functions that need to be performed by the Federal Government?

4.7.2.2.2. Does the acquisition need to be undertaken by the DoD Component because no alternative private sector or governmental source can better support the function?

4.7.2.2.3. Does the acquisition support work processes that have been simplified or otherwise redesigned to reduce costs, improve effectiveness, and make maximum use of commercial off-the-shelf technology?

4.7.2.3. Technological Opportunity Activities. Technological opportunities within DoD laboratories and research centers, from academia, or from commercial sources are identified within the Defense Science and Technology (S&T) Program. The DoD S&T Program mission is to provide the users of today and tomorrow with superior and affordable technology to support their missions, and to enable them to have revolutionary war-winning capabilities. The S&T Program is uniquely positioned to reduce the risks of promising technologies before they are assumed in the acquisition process. The Deputy Under Secretary of Defense (Science & Technology) (DUSD(S&T)) is responsible for the overall direction, quality, content, and oversight of the DoD S&T Program (including software capability). The DUSD(S&T) is also responsible for promoting coordination, cooperation, and mutual understanding of the S&T program within the Department of Defense, other Federal Agencies, and the civilian community.

4.7.2.3.1. S&T Program Content. The S&T program consists of the following:

4.7.2.3.1.1. Basic Research. Scientific study and experimentation directed toward increasing knowledge and understanding in the science fields and discovering phenomena that can be exploited for military purposes.

4.7.2.3.1.2. Applied Research. Translates promising research into solutions for broadly defined military problems with effort that may vary from applied research to sophisticated breadboard subsystems that establish the initial feasibility and practicality of proposed solutions or technologies.

4.7.2.3.1.3. Advanced Technology. Demonstrates the performance payoff, increased logistics or interoperability capabilities, or cost reduction potential of militarily relevant technology.

4.7.2.3.2. Technology Transition Objectives. The DUSD(S&T) shall provide support and oversight to the Component S&T Executives as they execute their statutory responsibilities. They shall:

4.7.2.3.2.1. Evaluate battlefield deficiencies as defined by the Joint Chiefs of Staff, Commanders-in-Chief (CINCs), and the Military Departments against ongoing S&T efforts.

4.7.2.3.2.2. Establish S&T projects when on-going S&T efforts are not available to address deficiencies.

4.7.2.3.2.3. Support the increased use of commercial technologies through the initiation of dual-use technology development projects to address deficiencies for both hardware and software.

4.7.2.3.2.4. For those technologies with the most promise for application to weapon systems or AISs, be responsible for maturing technology to a readiness level that puts the receiving MDA at low risk for systems integration and acceptable to the cognizant MDA, or until the MDA is no longer considering that technology.

4.7.2.3.2.5. Advise the requirements and acquisition communities of new technology developments and options that will contribute to meeting future warfighting objectives and ensure that technical advice is available to PMs throughout the system development process.

4.7.2.3.2.6. Conduct independent technology assessments and assist in determining the maturity of critical system technologies for transition to the System Acquisition process, during System Development and Demonstration and at Milestone C.

4.7.2.3.2.7. Identify Critical Program Information (CPI), both classified and unclassified, requiring security protection.

4.7.2.3.2.8. Obtain approval of appropriate disclosure authority for S&T projects prior to formalizing the sharing of critical research and technology information with foreign governments and international organizations.

4.7.2.3.3. Technology Transition Mechanisms. To ensure the transition of innovative concepts and superior technology to the user and acquisition customer, the DoD Component S&T Executives shall use three mechanisms: Advanced Technology Demonstrations (ATDs), Advanced Concept Technology Demonstrations (ACTDs), and Experiments, both joint and Service-specific. The specific plans and processes for these transition mechanisms are described in the Joint Warfighting S&T Plan and the individual DoD Component S&T Plans. S&T activities shall be conducted in a way that facilitates or at least does not preclude the availability of competition for future acquisition programs.

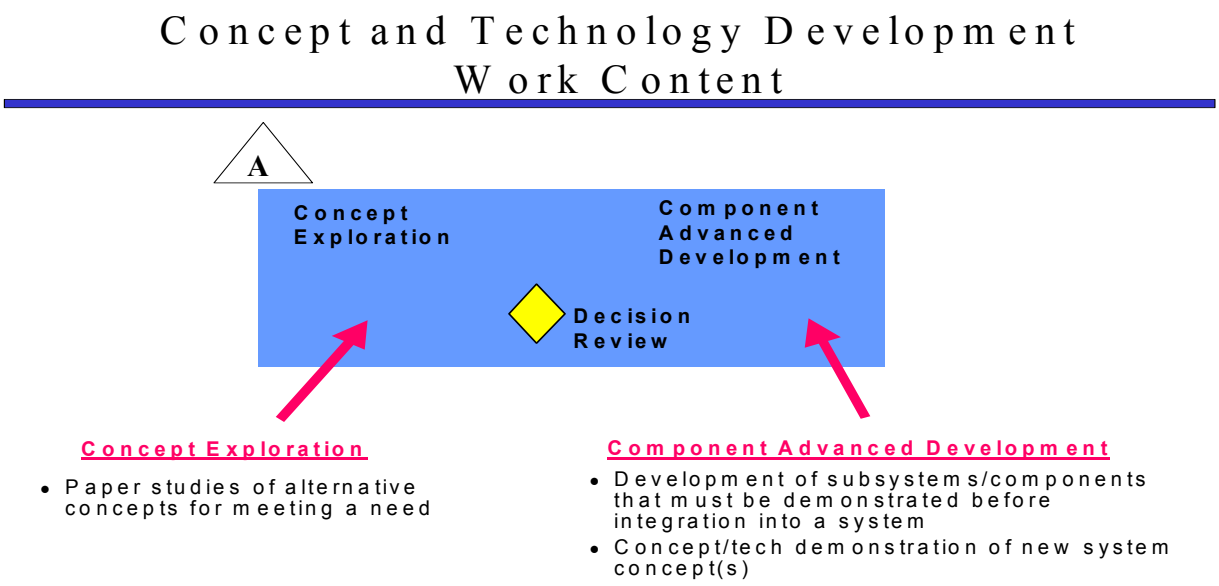
4.7.2.3.3.1. ATDs shall be used to demonstrate the maturity and potential of advanced technologies for enhanced military operational capability or cost effectiveness.

4.7.2.3.3.2. ACTDs shall be used to determine military utility of proven technology and to develop the concept of operations that will optimize effectiveness.

4.7.2.3.3.3. Experiments shall be used to develop and assess concept-based hypotheses to identify and recommend the best value-added solutions for changes to doctrine, organizational structure, training and education, materiel, leadership, and people required to achieve significant advances in future joint operational capabilities.

4.7.2.4. Analyze Alternatives and Develop Concepts and Technologies. One path into systems acquisition begins with examining alternative concepts, including cooperative opportunities and procurement or modification of Allied systems or equipment, to meet a stated mission need. This path begins with a decision to enter Concept and Technology Development at Milestone A. The phase ends with a selection of a system architecture(s) and the completion of entrance criteria for Milestone B and System Development and Demonstration Phase.

Figure F3.



4.7.2.4.1. Entrance Criteria. After the requirements authority validates and approves a MNS, the MDA (through the IPT process) will review the MNS, consider possible technology issues (e.g., technologies demonstrated in ATDs), and identify possible alternatives before making a Milestone A decision. The decision shall not be made final until a thorough analysis of multiple concepts to be studied, including international systems from Allies and cooperative opportunities (see 10 U.S.C. §2350a, reference (t)), has been completed. If an international system is selected, the program shall enter systems acquisition activities at Milestone B or C.

4.7.2.4.2. Milestone A

4.7.2.4.2.1. At Milestone A, the MDA shall approve the initiation of concept studies, designate a lead Component, approve Concept Exploration exit criteria, and issue the

Acquisition Decision Memorandum. The leader of the concept development team, working with the integrated test team, shall develop an evaluation strategy that describes how the capabilities in the MNS will be evaluated once the system is developed. That evaluation strategy shall be approved by the DOT&E and the cognizant OIPT leader 180 days after Milestone A approval.

4.7.2.4.2.2. A favorable Milestone A decision DOES NOT yet mean that a new acquisition program has been initiated.

4.7.2.4.2.3. The tables in enclosure 3 identify all statutory and regulatory requirements applicable to Milestone A.

4.7.2.4.2.4. Milestone A approval can lead to Concept Exploration or Component Advanced Development depending on whether an evaluation of multiple concepts is desired or if a concept has been chosen, but more work is needed on key sub-systems or components before a system architecture can be determined and the technologies can be demonstrated in a relevant environment.

4.7.2.4.3. Concept Exploration

4.7.2.4.3.1. Concept Exploration typically consists of competitive, parallel, short-term concept studies. 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 (i.e., advantages and disadvantages, degree of risk, etc.) of these concepts. Analyses of alternatives shall be used to facilitate comparisons of alternative concepts.

4.7.2.4.3.2. In order to achieve the best possible system solution, emphasis will be placed on innovation and competition. To this end, participation by a diversified range of businesses (i.e., small, new, domestic, and international) should be encouraged. Alternative system design concepts will be primarily solicited from private industry and, where appropriate, from organic activities, international technology and equipment firms, Federal laboratories, federally funded research and development centers, educational institutions, and other not-for-profit organizations.

4.7.2.4.3.3. The work in Concept Exploration normally shall be funded only for completion of concept studies contracts. The work shall be guided by the MNS.

4.7.2.4.3.4. The most promising system concepts shall be defined in terms of initial, broad objectives for cost, schedule, and performance; identification of interoperability, security, survivability, operational continuity, technology protection, operational support, and infrastructure requirements within a family of systems; opportunities for tradeoffs, and an overall acquisition strategy and test and evaluation strategy (including Development Test and Evaluation (DT&E), Operational Test and Evaluation (OT&E), and Live Fire Test and Evaluation (LFT&E)). The DoD Components shall also consider initiating government-to-government efforts to develop international cooperation in attaining the most promising system concepts.

4.7.2.4.3.5. This work effort ends with a review, at which the MDA selects the preferred concept to be pursued for which technologies are available.

4.7.2.4.4. Decision Review. During Concept Exploration, the MDA may hold a decision review to determine if additional component development is necessary before key technologies will be sufficiently mature to enter System Development and Demonstration for one of the concepts under consideration. If the concepts do not require technologies necessitating additional component development, the appropriate milestone (B or C) shall be held in place of this review.

4.7.2.4.5. Program Initiation In Advance of Milestone B. The practical result of a preference for more mature technology is initiation of individual programs at later stages of development, after determination of technology maturity. As a consequence, most MDAPs will be initiated at Milestone B. On the rare occasions when an earlier program initiation is appropriate, it will take place at entry to or during Component Advanced Development. At program initiation in advance of Milestone B, the MDA shall approve the acquisition strategy, the acquisition program baseline, IT certification for MAISs (reference (u)), and exit criteria for the Component Advanced Development work effort if not already established.

4.7.2.4.6. Component Advanced Development. The project shall enter Component Advanced Development when the project leader has a concept for the needed capability, but does not yet know the system architecture. Unless otherwise determined by the MDA, the component technology to be developed shall have been proven in concept. The project shall exit Component Advanced Development when a system architecture has been developed and the component technology has been demonstrated in the relevant environment or the MDA decides to end this effort. This effort is intended to reduce risk on components and subsystems that have only been demonstrated in a laboratory environment and to determine the appropriate set of subsystems to be integrated into a full system. This work effort normally will be funded only for the advanced development work. The work effort will be guided by the validated MNS, but during this activity, an ORD shall be developed to support program initiation. Also, acquisition information necessary for a milestone decision (e.g., the acquisition strategy, program protection plan, etc.) shall be developed. This effort is normally followed by entry into the System Development and Demonstration phase after a Milestone B decision by the MDA.

4.7.3. Systems Acquisition

4.7.3.1. General

4.7.3.1.1. Systems acquisition is the process of developing concepts into producible and deployable products that provide capability to the user. The concept to exploit in systems acquisition is based on an analysis of alternative ways to meet the military need (done either in Concept Exploration or technological opportunities development), including commercial and non-developmental technologies and products and services determined through market analysis. The DoD Component (or appropriate principal staff office for MAIS programs) responsible for the mission area in which a deficiency or opportunity has been identified, but not

the PM, shall normally prepare the analysis of alternatives (although the PM or PM's representative may participate in the analysis).

4.7.3.1.2. The goal is to develop the best overall value solution over the system's life cycle that meets the user's operational requirements. Generally, use or modification of systems or equipment that the DoD Components already own is more cost and schedule-effective than acquiring new materiel. If existing U.S. military systems or other on-hand materiel cannot be economically used or modified to meet the operational requirement, an acquisition program may be justified and acquisition decision-makers shall follow the following hierarchy of alternatives: the procurement (including modification) of commercially available domestic or international technologies, systems or equipment, or the additional production (including modification) of previously-developed U.S. military systems or equipment, or Allied systems or equipment; cooperative development program with one or more Allied nations; new joint Component or Government Agency development program; and a new Component-unique development program. Important in this evaluation process for new or modified systems are considerations for interoperability and supportability with existing and planned future components or systems.

4.7.3.1.3. The use of Allied systems and equipment is a preferred source of meeting user requirements. The Department of Defense places great weight on interoperability of equipment with Allied governments and coalition partners and on Allied participation in DoD acquisition programs through cooperative development and production and through sales of U.S. equipment. Accordingly, potential foreign participation shall be considered as part of the acquisition strategy approved for Milestone B, to be reviewed at each subsequent major decision point. In addition, the PM shall specifically consider and be responsible for proposing program disclosure guidance at each major decision point. The PM shall ensure that appropriate measures are in place to protect Critical Program Information and that appropriate anti-tampering measures are taken, at all times.

4.7.3.1.4. DoD acquisition and procurement of weapons and weapon systems shall be consistent with all applicable domestic law and all applicable treaties, customary international law, and the law of armed conflict (also known as the laws and customs of war). The Head of each DoD Component shall ensure that all Component activities that could reasonably generate questions concerning compliance with obligations under arms control agreements to which the United States is a party shall have clearance from the USD(AT&L), in coordination with the General Counsel, DoD, and the Under Secretary of Defense (Policy), before such activity is undertaken. The Head of each DoD Component shall ensure that the Component's General Counsel or Judge Advocate General, as appropriate, conducts a legal review of the intended acquisition of a potential weapon or weapon system to determine that it is consistent with U.S. obligations. The review shall be conducted again before the award of a system development and demonstration contract for the weapon or weapon system and before the award of the initial production contract. Files shall be kept permanently. Additionally, legal reviews of new, advanced or emerging technologies that may lead to development of weapons or weapon systems are encouraged.

4.7.3.1.5. The DoD Components shall not award a contract for the acquisition of a mission-critical or mission-essential IT system, at any level, until:

4.7.3.1.5.1. The Component registers the system with the DoD Chief Information Officer (CIO);

4.7.3.1.5.2. The DoD CIO determines the system has an appropriate information assurance strategy; and

4.7.3.1.5.3. The Component CIO confirms that the system is being developed in accordance with the Clinger-Cohen Act (CCA) (reference (m)) by complying with subparagraph 4.7.3.2.3.2 below. The DoD CIO will review the Component CIO's determination of CCA compliance for sufficiency before contract award, for MDAPs and MAIS programs. For mission-critical or mission-essential IT systems being acquired under MDAPs and MAIS programs, the information assurance strategy shall be submitted to the DoD CIO for review. For contracts for other than MDAP or MAIS programs, the DoD CIO's determination that the information assurance strategy is appropriate will generally be based on the certification of the Component CIO. However, even if a certification has been provided, the DoD CIO may conduct a more detailed review of such information assurance strategies.

4.7.3.1.6. IT intended for use by non-military users shall be accessible to people with disabilities (reference (v)).

4.7.3.2. Begin Development and Develop and Demonstrate Systems

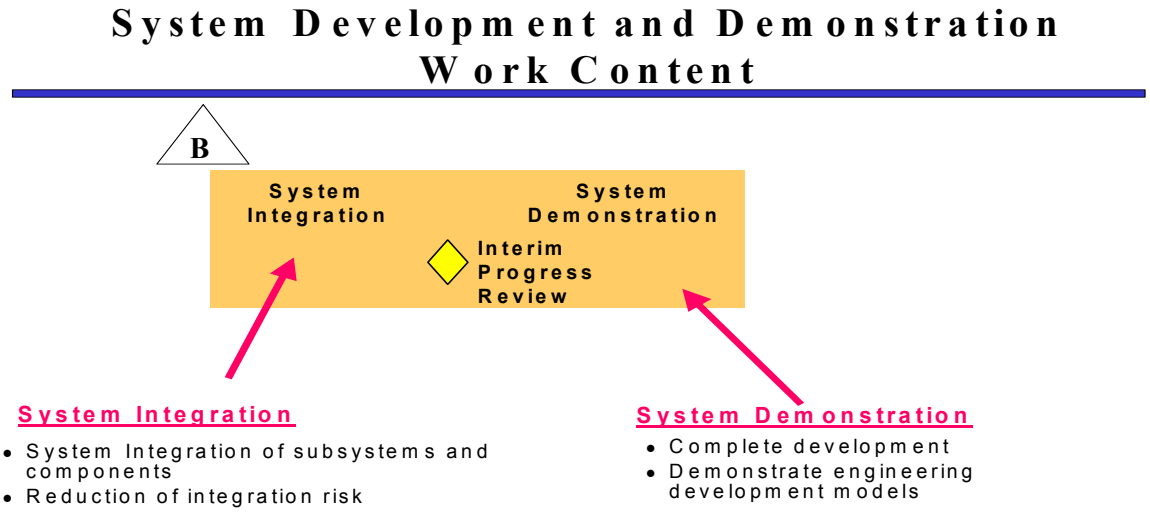


Figure F4.

4.7.3.2.1. General

4.7.3.2.1.1. The purpose of the System Development and Demonstration phase is to develop a system, reduce program risk, ensure operational supportability, design for producibility, ensure affordability, ensure protection of Critical Program Information, and demonstrate system integration, interoperability, and utility. Discovery and development are aided by the use of simulation-based acquisition and test and evaluation and guided by a system acquisition strategy and test and evaluation master plan (TEMP). System modeling, simulation, test, and evaluation activities shall be integrated into an efficient continuum planned and executed by a test and evaluation integrated product team (T&E IPT). This continuum shall feature coordinated test events, access to all test data by all involved Agencies, and independent evaluation of test results by involved Agencies. Modeling, simulation, and development test shall be under the direct responsibility of the PM or a designated test agency. All results of early operational assessments shall be reported to the Service Chief by the appropriate operational test activity and used by the MDA in support of decisions. The independent planning, execution, and evaluation of dedicated Initial Operational Test and Evaluation (IOT&E), as required by law, and Follow-on Operational Test and Evaluation (FOT&E), if required, shall be the responsibility of the appropriate operational test activity (OTA).

4.7.3.2.1.2. This phase can be entered either directly out of technology opportunity and user need activities or from Concept Exploration. The actual entry point depends on the maturity of the technologies, validated requirements (including urgency of need), and affordability. The MDA shall determine the appropriate entrance point, which shall be Milestone B. There shall be only one Milestone B per program, or evolutionary block.

4.7.3.2.1.3. Each DoD Component should maintain a transition fund in the out-years of the Future Year Defense Program (FYDP) to allow rapid transition of military or commercial projects from technology opportunity and user needs activities to System Development and Demonstration or Commitment to Low-Rate Production. Each DoD Component shall determine the size of its transition fund. The transition fund for the first year of the program must be distributed to individual budget lines prior to submission of the Budget Estimate Submission for that year.

4.7.3.2.2. Entrance Criteria

4.7.3.2.2.1. Entrance into System Development and Demonstration is dependent on three things: technology (including software) maturity, validated requirements, and funding. Unless some other factor is overriding in its impact, the maturity of the technology will determine the path to be followed. Programs that enter the process at Milestone B shall have a system architecture and an operational architecture for their relevant mission area.

4.7.3.2.2.2. Technology is developed in S&T or procured from industry. Technology must have been demonstrated in a relevant environment (reference (d) for a discussion of technology maturity) or, preferably, in an operational environment (using the transition mechanisms) to be considered mature enough to use for product development in systems integration. If technology is not mature, the DoD Component shall use alternative

technology that is mature and that can meet the user's needs. The determination of technology maturity is made by the DoD Component S&T Executive, with review of the determination for MDAPs by the DUSD(S&T). If the DUSD(S&T) does not concur with the determination, the DUSD(S&T) will direct an independent assessment. To promote increased consideration of technological issues early in the development process, the MDA shall, at each acquisition program decision, consider any position paper prepared by a Defense research facility on a technological issue relating to the major system being reviewed; and any technological assessment made by a Defense research facility (reference (w)). A defense research facility is a DoD facility that performs or contracts for the performance of basic research or applied research known as exploratory development.

4.7.3.2.2.3. Prior to entering System Development and Demonstration, there shall be an ORD validated by the requirements authority. The ORD contains operational performance requirements and addresses cost for a proposed concept or system. Time-phased ORDs must be validated by the requirements authority prior to program approval. If a mature technology, non-developmental item, or commercial item is being considered for transition to an acquisition program at Milestone B or C, it must have a validated ORD prior to being approved as an acquisition program.

4.7.3.2.2.4. The affordability determination is made in the process of addressing cost as a military requirement in the requirements process and included in each ORD, beginning with the acquisition cost but using life-cycle cost or total ownership cost where available and approved. Transition into System Development and Demonstration also requires full funding (i.e., inclusion in the budget and out-year program of the funding for all current and future efforts necessary to carry out the acquisition strategy), which shall be programmed when a system concept and design have been selected, a PM has been assigned, an ORD has been approved, and system-level development is ready to begin. In the case of a replacement system, when the Milestone B is projected to occur in the first 2 years of the FYDP under review, the program shall be fully funded in that PPBS cycle. In no case shall full funding be done later than Milestone B, unless a program first enters the acquisition process at Milestone C. The DoD Components shall fully fund their share of approved joint and international cooperative program commitments.

4.7.3.2.2.5. If Critical Program Information is identified during non-systems acquisition activities, the Component shall prepare preliminary security and foreign disclosure plans and anti-tampering assessments for MDA approval. These plans and assessments shall be drawn from the Program Protection Plan (i.e., a comprehensive plan to safeguard critical program and technology information that is associated with a defense acquisition program) and addressed in the acquisition strategy. The level and detail of information in the Plan will vary based on the criticality of the program, the CPI, and the phase of the acquisition process. Anti-tampering will be addressed in an annex to the Plan.

4.7.3.2.3. <u>Milestone B</u>. Milestone B is normally the initiation of an acquisition program. The purpose of Milestone B is to authorize entry into System Development and Demonstration.

4.7.3.2.3.1. Milestone Approval Considerations

4.7.3.2.3.1.1. Prior to approving entry into System Development and Demonstration at Milestone B, the MDA shall consider the validated ORD, System Threat Assessment, independent technology assessment and any technology issues identified by DoD research facilities, any early operational assessments or test and evaluation results, analysis of alternatives including compliance with the Department of Defense's strategic plan (based on the Government Performance and Results Act (GPRA), reference (x)), the independent cost estimate or, for MAISs, component cost analysis and the economic analysis, manpower estimate (if applicable), whether an application for frequency allocation has been made (if the system will require utilization of the electromagnetic spectrum), system affordability and funding, the program protection for Critical Program Information, anti-tamper provisions, the Delegation of Disclosure Authority Letter (DDL) concerning foreign disclosure of program information vis-à-vis foreign participation in the program and/or sales of the system, the proposed acquisition strategy, cooperative opportunities, and infrastructure and operational support.

4.7.3.2.3.1.2. At Milestone B the MDA shall confirm the acquisition strategy approved prior to release of the final Request for Proposal and approve the development acquisition program baseline, low-rate initial production quantities (where applicable), and System Development and Demonstration exit criteria (and exit criteria for interim progress review, if necessary). For shipbuilding programs, the lead ship engineering development model shall be authorized at Milestone B. Critical systems for the lead and follow ships shall be demonstrated given the level of technology maturity and the associated risk prior to ship installation. Follow ships may be initially authorized at Milestone B, to preserve the production base, with final authorization dependent on completion of critical systems demonstration, as directed by the MDA.

4.7.3.2.3.1.3. The DOT&E and the cognizant Overarching Integrated Product Team Leader shall approve the Test and Evaluation Master Plan (TEMP) (including the LFT&E strategy, if applicable) for all OSD test and evaluation oversight programs. If full-up, system-level LFT&E is unreasonably expensive and impractical, a waiver shall be approved by the USD(AT&L), for programs where he or she is the MDA, or by the CAE, for programs where he or she is the MDA, and an alternative LFT&E plan shall be approved by the DOT&E before entry into System Development and Demonstration (reference (y)).

4.7.3.2.3.1.4. For MDAPs, a Milestone B decision shall be the occasion for submission of a revised Selected Acquisition Report (reference (d)). IT intended for use by non-military users shall be accessible to people with disabilities (reference (v)).

4.7.3.2.3.1.5. The tables in enclosure 3 identify the statutory and regulatory requirements that must be met at this milestone. Note that these cannot be deferred to a follow-on interim progress review or future milestone.

4.7.3.2.3.2. IT-Specific Considerations

4.7.3.2.3.2.1. The MDA shall not approve program initiation or entry into any phase that requires milestone approval (to include full-rate production) for an acquisition program (at any level) for a mission-critical or mission-essential IT system until the Component CIO confirms that the system is being developed in accordance with the Clinger-Cohen Act (CCA) (reference (m)). At a minimum, the Component CIO's confirmation shall include a written description of the following:

4.7.3.2.3.2.1.1. The acquisition supports core, priority functions that need to be performed by the Federal Government.

4.7.3.2.3.2.1.2. No private sector or Government source can better support the function.

4.7.3.2.3.2.1.3. The processes that the system supports have been redesigned to reduce costs, improve effectiveness and maximize the use of COTS technology.

4.7.3.2.3.2.1.4. An analysis of alternatives has been conducted.

4.7.3.2.3.2.1.5. For AIS, an economic analysis has been conducted that includes a calculation of the return on investment; or for non-AIS programs, an LCCE has been conducted.

4.7.3.2.3.2.1.6. There are clearly established measures and accountability for program progress.

4.7.3.2.3.2.1.7. Mission-related, outcome-based performance measures have been established and linked to strategic goals.

4.7.3.2.3.2.1.8. The program has an information assurance strategy that is consistent with DoD policies, standards, and architectures.

4.7.3.2.3.2.1.9. The acquisition is consistent with the Global Information Grid policies and architecture, to include relevant standards.

4.7.3.2.3.2.1.10. To the maximum extent practicable:

4.7.3.2.3.2.1.10.1. Modular contracting is being used; and

4.7.3.2.3.2.1.10.2. The program is being implemented in phased, successive blocks, each of which meets part of the mission need and delivers a measurable benefit, independent of future blocks.

4.7.3.2.3.2.1.11. The system being acquired is registered with the DoD CIO. (See reference (d), Appendix 7.)

4.7.3.2.3.2.2. For MDAP programs, the Component CIO's confirmation shall be provided to both the DoD CIO and the MDA.

4.7.3.2.3.2.3. For MAIS programs, the certification shall be submitted to the DoD CIO and will include a CCA Compliance Report that addresses the above items. The DoD CIO will review the CCA Compliance Report and certify to the congressional defense committees that the MAIS is being developed in accordance with the CCA before approving program initiation or entry into any phase (including full-rate production) that requires a milestone approval, as required by §8102 of the FY 2001 Appropriations Act (reference (u)). For delegated MAIS programs, the MDA shall not approve program initiation or entry into any phase that requires milestone approval (including full-rate production) until the DoD CIO certifies CCA compliance to the congressional defense committees. The DoD CIO will issue guidance on procedures for submitting CCA compliance reports for MAIS. The CCA Compliance Report shall be submitted at least three months before the milestone approval is needed.

4.7.3.2.3.2.4. The requirement to confirm CCA compliance applies to milestone decisions for each block of an evolutionary acquisition. The requirements of the CCA apply to all IT (including NSS) acquisitions, but the CCA confirmation requirements described above apply only to mission-critical and mission-essential IT systems. For purposes of CCA certification (as required by §8102 of the FY 2001 DoD Appropriations Act (reference (u)), all MAIS shall be considered mission critical or mission essential. The CCA certification requirement applies only to MAIS.

4.7.3.2.3.3. <u>Acquisition Strategy Considerations</u>

4.7.3.2.3.3.1. The acquisition strategy shall define not only the approach to be followed in System Development and Demonstration, but also how the program is structured to achieve full capability. There are two such approaches, evolutionary and single step to full capability. An evolutionary approach is preferred. Evolutionary acquisition is an approach that fields an operationally useful and supportable capability in as short a time as possible. This approach is particularly useful if software is a key component of the system, and the software is required for the system to achieve its intended mission. Evolutionary acquisition delivers an initial capability with the explicit intent of delivering improved or updated capability in the future.

4.7.3.2.3.3.2. The approach to be followed depends on the availability of time-phased requirements in the ORD, the maturity of technologies, the relative costs and benefits of executing the program in blocks versus a single step, including consideration of how best to support each block when fielded (e.g., whether to retrofit earlier blocks, the cost of multiple configurations, how best to conduct new equipment training, etc.). The rationale for choosing a single step to full capability, when given an ORD with time-phased requirements, shall be addressed in the acquisition strategy. Similarly, the rationale for choosing an evolutionary approach, when given an ORD with no time-phased requirements, shall be addressed in the acquisition strategy. For both the evolutionary and single-step approaches,

software development and integration shall follow an iterative spiral development process in which continually expanding software versions are based on learning from earlier development.

4.7.3.2.3.3.3. In an evolutionary approach, the ultimate capability delivered to the user is divided into two or more blocks, with increasing increments of capability. Deliveries for each block may extend over months or years. Block 1 provides the initial deployment capability (a usable increment of capability called for in the ORD). There are two approaches to treatment of subsequent blocks:

4.7.3.2.3.3.3.1. The ORD includes a firm definition of full capability, as well as a firm definition of requirements to be satisfied by each block, including an IOC date for each block. In this case, each block shall be baselined and the acquisition strategy shall define each block of capability and how it will be funded, developed, tested, produced, and operationally supported.

4.7.3.2.3.3.3.2. The ORD includes a firm definition of the first block, but does not allocate to specific subsequent blocks the remaining requirements that must be met to achieve full capability. In an evolutionary acquisition, the specific requirements for Block 2 are defined in the ORD, based on the user's increased understanding of the delivered capability, the evolving threat, and available technology, lead-time-away from beginning work on Block 2, and so on, until full capability is achieved. Requirements that cannot be fulfilled during a specific block development, with the approval of the requirements authority, may be delayed to the next block development. The first block, and each subsequent block, is baselined in conjunction with the MDA authorizing work to proceed on that block. The acquisition strategy shall define the first block, of capability, and how it will be funded, developed, tested, produced, and supported; the full capability the evolutionary acquisition is intended to satisfy, and the funding and schedule planned to achieve the full capability to the extent it can be described; and the management approach to be used to define the requirements for each subsequent block and the acquisition strategy applicable to each block, including whether end items delivered under earlier blocks will be retrofitted with later block improvements.

4.7.3.2.3.3.4. In a single step to full capability approach, the full system capability is developed and demonstrated prior to Milestone C. Under this approach, any modification that is of sufficient cost and complexity that it could itself qualify as an MDAP or MAIS shall be considered for management purposes as a separate acquisition effort. Modifications that do not cross the MDAP or MAIS threshold shall be considered part of the program being modified, unless the program is no longer in production. In that case, the modification shall be considered a separate acquisition effort. Modifications may cause a program baseline deviation. Deviations shall be reported using the criteria and procedures in DoD 5000.2-R (reference (d)).

4.7.3.2.3.4. <u>Entry into System Development and Demonstration</u>

4.7.3.2.3.4.1. Milestone B approval can lead to System Integration or System Demonstration. Regardless of the approach recommended, PMs and other acquisition managers shall continually assess program risks. Risks must be well understood, and risk

management approaches developed, before decision authorities can authorize a program to proceed into the next phase of the acquisition process. Risk management is an organized method of identifying and measuring risk and developing, selecting, and managing options for handling these risks. The types of risk include, but are not limited to, schedule, cost, technical feasibility, threat, risk of technical obsolescence, security, software management, dependencies between a new program and other programs, and risk of creating a monopoly for future procurements.

4.7.3.2.3.4.2. The nature of software-intensive system development, characterized by a spiral build-test-fix-test-deploy process, may lend itself to a combined system integration and system demonstration, rather than serial efforts more typical of hardware-intensive systems.

4.7.3.2.4. System Integration

4.7.3.2.4.1. The program shall enter System Integration when the PM has an architecture for the system, but has not yet integrated the subsystems into a complete system. The program shall exit System Integration when the integration of the system has been demonstrated in a relevant environment using prototypes (e.g., first flight, interoperable data flow across systems), a system configuration has been documented, the MDA determines a factor other than technology justifies forward progress, or the MDA decides to end this effort.

4.7.3.2.4.2. This effort is intended to integrate the subsystems and reduce system-level risk. The work effort will be guided by a validated ORD. The work effort will be followed by System Demonstration after a successful Interim Progress Review by the MDA (or the person designated by the MDA).

4.7.3.2.5. Interim Progress Review. The purpose of an interim progress review is to confirm that the program is progressing within the phase as planned or to adjust the plan to better accommodate progress made to date, changed circumstances, or both. If the adjustment involves changing the acquisition strategy, the change must be approved by the MDA. There is no required information necessary for this review other than the information specifically requested by the decision-maker.

4.7.3.2.6. System Demonstration

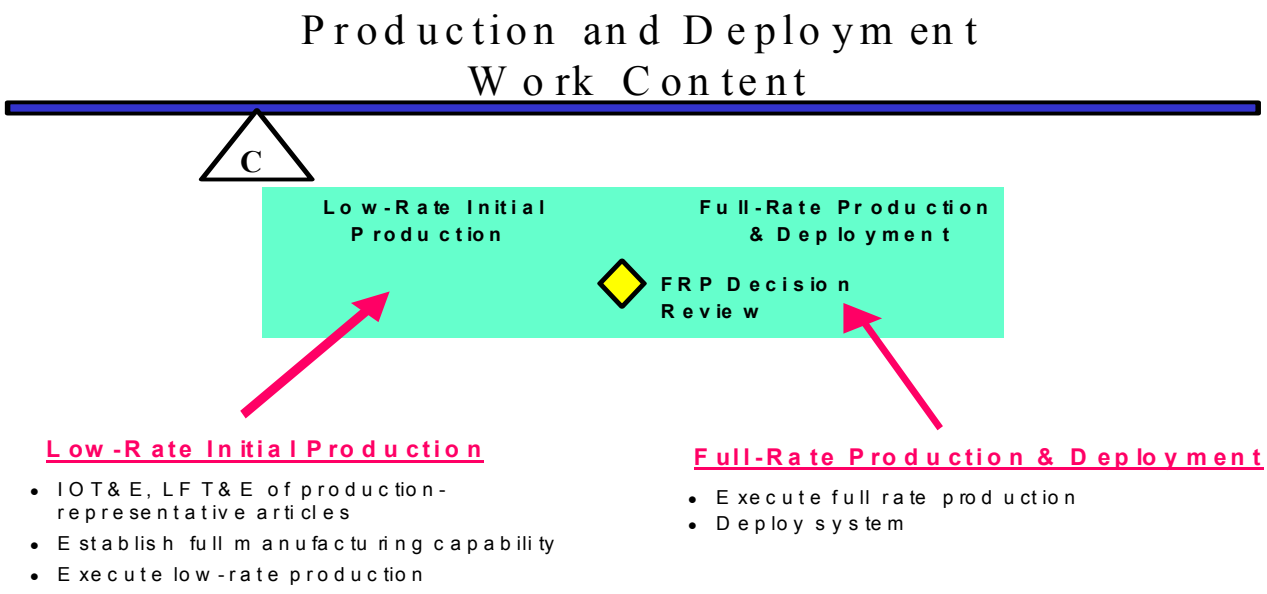
4.7.3.2.6.1. The program shall enter System Demonstration when the PM has demonstrated the system in prototype articles. This effort is intended to demonstrate the ability of the system to operate in a useful way consistent with the validated ORD.

4.7.3.2.6.2. This phase ends when a system is demonstrated in its intended environment, using engineering development models or integrated commercial items; meets validated requirements; industrial capabilities are reasonably available; and the system meets or exceeds exit criteria and Milestone C entrance requirements. Preference shall be given to the use of modeling and simulation as the primary method for assessing product maturity where proven capabilities exist, with the use of test to validate modeling and simulation results. The

completion of this phase is dependent on a decision by the MDA to commit to the program at Milestone C or a decision to end this effort.

4.7.3.3. Commitment to Low-Rate Production and Produce and Deploy Systems

Figure F5.



4.7.3.3.1. General

4.7.3.3.1.1. The purpose of the Production and Deployment phase is to achieve an operational capability that satisfies mission needs. The production requirement of this phase does not apply to MAISs. However, software has to prove its maturity level prior to deploying to the operational environment. Once maturity has been proven, the system or block is baselined, and a methodical and synchronized deployment plan is implemented to all applicable locations.

4.7.3.3.1.2. A system must be demonstrated before the Department of Defense will commit to production (or procurement) and deployment. For DOT&E Oversight programs, a system can not be produced at full-rate until a Beyond Low-Rate Initial Production Report has been completed and sent to Congress, the Secretary of Defense, and the USD(AT&L). The MDA shall make the commitment decision at Milestone C. Milestone C can be reached directly from pre-systems acquisition (e.g., a commercial product) or from System Development and Demonstration phase.

4.7.3.3.2. Entrance Criteria. Regardless of the entry point, approval at Milestone C is dependent on the following criteria being met (or a decision by the MDA to proceed):

4.7.3.3.2.1. Technology maturity (with an independent technology readiness assessment), system and relevant mission area (operational) architectures, mature software capability, demonstrated system integration or demonstrated commercial products in a relevant environment, and no significant manufacturing risks.

4.7.3.3.2.2. An approved ORD.

4.7.3.3.2.3. Acceptable interoperability.

4.7.3.3.2.4. Acceptable operational supportability.

4.7.3.3.2.5. Compliance with the DoD Strategic Plan (reference (z)).

4.7.3.3.2.6. Demonstration that the system is affordable throughout the life cycle, optimally funded, and properly phased for rapid acquisition.

4.7.3.3.2.7. Acceptable information assurance to include information assurance detection and recovery.

4.7.3.3.2.8. Acceptable anti-tamper provisions.

4.7.3.3.3. Milestone C. The purpose of this milestone is to authorize entry into low-rate initial production (for MDAPs and major systems), into production or procurement (for non-major systems that do not require low-rate production) or into limited deployment for MAIS or software-intensive systems with no production components.

4.7.3.3.3.1. Milestone Approval Considerations

4.7.3.3.3.1.1. Prior to making the milestone decision, the MDA shall consider the independent cost estimate, and, for MAISs, the component cost analysis and economic analysis , the manpower estimate, compliance with the CCA (reference (m)), whether an application for frequency allocation has been approved (for systems that require utilization of the electromagnetic spectrum), System Threat Assessment, the program protection for Critical Program Information including anti-tamper recommendations, the DDL, and an established completion schedule for National Environmental Policy Act (NEPA) (reference (aa)) and E.O. 12114 (reference (ab)) compliance covering testing, training, basing, and operational support.

4.7.3.3.3.1.2. At this milestone, the MDA shall confirm the acquisition strategy approved prior to the release of the final Request for Proposal and approve an updated development acquisition program baseline, exit criteria for low-rate initial production (LRIP) (if needed) or limited deployment, and the acquisition decision memorandum.

4.7.3.3.3.1.3. The DOT&E and cognizant OIPT Leader shall approve the TEMP for all OSD test and evaluation oversight programs. For MDAPs, a milestone decision shall be the occasion for submission of a revised Selected Acquisition Report (reference (d)).

4.7.3.3.3.1.4. A favorable Milestone C decision authorizes the PM to commence LRIP or limited deployment for MDAPs and major systems. The PM is only authorized to commence full-rate production with further approval of the MDA. There shall be normally no more than one decision (i.e., either low-rate or full-rate) at the Defense Acquisition Executive (DAE)-level for MDAPs.

4.7.3.3.3.1.5. The tables at enclosure 3 identify the statutory and regulatory requirements that must be met at this decision point.

4.7.3.3.3.2. IT-Specific Considerations

4.7.3.3.3.2.1. For MAIS, the MDA shall approve, in coordination with DOT&E, the quantity and location of sites for a limited deployment for IOT&E.

4.7.3.3.3.2.2. See subparagraph 4.7.3.2.3.2. for the requirement to certify CCA compliance before entering Production and Deployment.

4.7.3.3.4. Low-Rate Initial Production (LRIP)

4.7.3.3.4.1. This work effort is intended to result in completion of manufacturing development in order to ensure adequate and efficient manufacturing capability and to produce the minimum quantity necessary to provide production configured or representative articles for initial operational test and evaluation (IOT&E), establish an initial production base for the system; and permit an orderly increase in the production rate for the system, sufficient to lead to full-rate production upon successful completion of operational (and live-fire, where applicable) testing. The work shall be guided by the ORD.

4.7.3.3.4.2. Deficiencies encountered in testing prior to Milestone C shall be resolved prior to proceeding beyond LRIP (at the Full-Rate Production Decision Review) and any fixes verified in IOT&E. Operational test plans shall be provided to the DOT&E for oversight programs in advance of the start of operational test and evaluation.

4.7.3.3.4.3. LRIP may be funded by either research, development, test and evaluation appropriation (RDT&E) or by procurement appropriations, depending on the intended usage of the LRIP assets. The DoD Financial Management Regulation (reference (j)) provides specific guidance for determining whether LRIP should be budgeted in RDT&E or in procurement appropriations.

4.7.3.3.4.4. LRIP quantities shall be minimized. The MDA shall determine the LRIP quantity for MDAPs and major systems at Milestone B. The LRIP quantity (with rationale for quantities exceeding 10 percent of the total production quantity documented in the acquisition strategy) shall be included in the first Selected Acquisition Report (reference (d)) after its determination. Any increase in quantity after the initial determination shall be approved by the MDA. The LRIP quantity shall not be less than one unit. When approved LRIP quantities are expected to be exceeded because the program has not yet demonstrated readiness

to proceed to full-rate production, the MDA shall assess the cost and benefits of a break in production versus continuing annual buys.

4.7.3.3.4.5. DOT&E shall determine the number of LRIP articles required for LFT&E and IOT&E of DOT&E Oversight Programs (MDAPs as defined in paragraph a(2)(B) of 10 U.S.C. 139 (reference (ac)). For a system that is not a DOT&E Oversight Program, the Operational Test Agency shall determine the number of LRIP articles required for IOT&E.

4.7.3.3.4.6. LRIP is not applicable to AISs or software intensive systems with no developmental hardware. However, a limited deployment phase may be applicable.

4.7.3.3.4.7. LRIP for ships and satellites is production of items at the minimum quantity and rate that is feasible and that preserves the mobilization production base for that system (reference (ad)).

4.7.3.3.5. Full-Rate Production Decision Review

4.7.3.3.5.1. Before making the full-rate production and deployment decision, the MDA shall consider:

4.7.3.3.5.1.1. The independent cost estimate, and for MAISs, the component cost analysis and economic analysis.

4.7.3.3.5.1.2. The manpower estimate (if applicable).

4.7.3.3.5.1.3. The results of operational and live fire test and evaluation (if applicable).

4.7.3.3.5.1.4. CCA compliance certification (reference (m)) and certification for MAISs (reference (u)).

4.7.3.3.5.1.5. C4I supportability certification.

4.7.3.3.5.1.6. Interoperability certification.

4.7.3.3.5.2. The MDA shall confirm the acquisition strategy approved prior to the release of the final Request for Proposal, the production acquisition program baseline, provisions for evaluation of post-deployment performance (in accordance with GPRA (reference (x)), CCA (reference (m)), and the Paperwork Reduction Act (reference (ae)), and the acquisition decision memorandum.

4.7.3.3.5.3. A full-rate production and deployment decision shall be the occasion for an update of the Selected Acquisition Report (reference (d)).

4.7.3.3.6. Full-Rate Production and Deployment. Following IOT&E, the submission of the Beyond LRIP and LFT&E Reports (where applicable) to Congress, the

Secretary of Defense, and the USD(AT&L), and the completion of a Full-Rate Production Decision Review by the MDA (or by the person designated by the MDA), the program shall enter Full-Rate Production (or procurement) and Deployment.

4.7.4. Sustainment. The objectives of this activity are the execution of a support program that meets operational support performance requirements and sustainment of systems in the most cost-effective manner for the life cycle of the system. When the system has reached the end of its useful life, it must be disposed of in an appropriate manner.

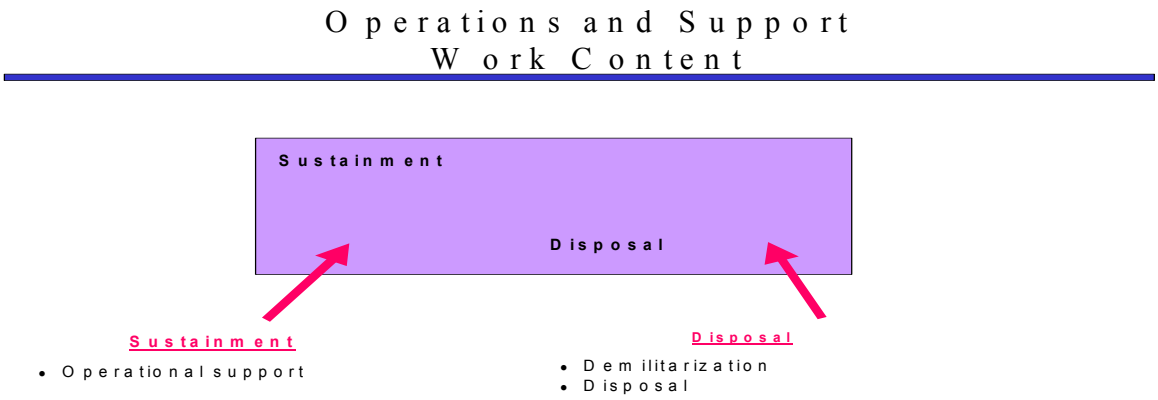


Figure F6.

4.7.4.1. Sustain Systems

4.7.4.1.1. The sustainment program includes all elements necessary to maintain the readiness and operational capability of deployed systems. The scope of support varies among programs but generally includes supply, maintenance, transportation, sustaining engineering, data management, configuration management, manpower, personnel, training, habitability, survivability, safety, occupational health, protection of Critical Program Information (CPI), anti-tamper provisions, IT (including NSS) supportability and interoperability, and environmental management functions. This activity also includes the execution of operational support plans in peacetime, crisis, and wartime.

4.7.4.1.2. Programs with software components must be capable of responding to emerging requirements that will require software modification or periodic enhancements after a system is deployed.

4.7.4.1.3. A follow-on operational test and evaluation program that evaluates operational effectiveness, survivability, suitability, and interoperability, and that identifies deficiencies shall be conducted, as appropriate (reference (d)).

4.7.4.1.4. The Department must develop a system to assess customer confidence at each step of the requirement and distribution chain. The primary metric of confidence shall be

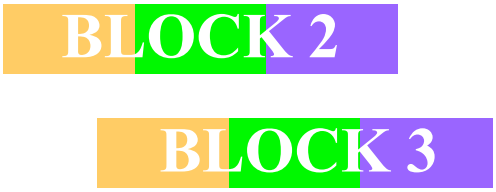
customer wait time. In order to achieve customer confidence, the system shall use a simplified priority system driven by user need date, be integrated to allow total asset visibility, and use a fully integrated data environment to ensure the joint users' ability to make timely and confident logistics decisions.

4.7.4.2. Evolutionary Sustainment. Supporting the tenets of evolutionary acquisition, sustainment strategies must evolve and be refined throughout the life cycle, particularly during development of subsequent blocks of an evolutionary strategy, modifications, upgrades, and reprocurement. The PM shall ensure that a flexible, performance-oriented strategy to sustain systems is developed and executed. This strategy will include consideration of the full scope of operational support, such as maintenance, supply, transportation, sustaining engineering, spectrum supportability, configuration and data management, manpower, training, environmental, health, safety, disposal and security factors. The use of performance requirements or conversion to performance requirements shall be emphasized during reprocurement of systems, subsystems, components, spares, and services after the initial production contract.

4.7.4.3. Dispose of Systems. At the end of its useful life, a system must be demilitarized and disposed. The PM shall address in the acquisition strategy demilitarization and disposal requirements and shall ensure that sufficient information exists so that disposal can be carried out in a way that is in accordance with all legal and regulatory requirements relating to safety, security, and the environment. The Defense Reutilization and Marketing Office shall execute the PM's strategy and demilitarize and dispose of items assigned to the Office.

4.7.5. Follow-on Blocks for Evolutionary Acquisition

Figure F7.



4.7.5.1. Evolutionary acquisition strategies are the preferred approach to satisfying operational needs. Evolutionary acquisition strategies define, develop, test, and produce/deploy an initial, militarily useful capability ("Block 1") and plan for subsequent definition, development, test and production/deployment of increments beyond the initial capability over time (Blocks 2, 3, and beyond). The scope, performance capabilities, and timing of subsequent increments shall be based on continuous communications among the requirements, acquisition, intelligence, logistics, and budget communities. Acquisition strategy considerations for evolutionary acquisition are described in subparagraph 4.7.3.2.3.3., above.

4.7.5.2. The requirements community shall ensure that user requirements are prioritized (and constrained, if necessary) for both the capability in the initial block and the increasing functionality in subsequent blocks.

4.7.5.3. The PM shall balance the need to meet evolving user requirements (responsiveness) against the ability of the users to support continued training and repeated deployments for new blocks (turbulence). The PM shall also consider the ability of the system contractor(s) to develop/integrate, test, and deploy multiple concurrent blocks.

4.8. Acquisition Categories and Milestone Decision Authority. A technology project or acquisition program shall be categorized based on its location in the acquisition process, dollar value, and complexity.

4.8.1. Pre-ACAT Technology Projects. Advanced Technology Demonstrations, Joint Warfighting Experiments, Advanced Concept and Technology Demonstrations, Concept Exploration are efforts that occur prior to acquisition program initiation. Component Advanced Development projects may occur before or after acquisition program initiation. If they occur after program initiation, they will be acquisition programs. The USD(AT&L) shall be the MDA for those projects that, if successful, will likely result in an MDAP. The ASD(C3I) shall be the MDA for those projects that, if successful, will result in a MAIS.

4.8.2. ACAT I

4.8.2.1. ACAT I programs are those programs that are MDAPs or that are designated ACAT I by the MDA as a result of the MDA's special interest.

4.8.2.2. In some cases, an ACAT IA program, as defined below, also meets the definition of a MDAP. The USD(AT&L) and the ASD(C3I)/DoD Chief Information Officer (CIO) shall decide who will be the MDA for such AIS programs. Regardless of who is the MDA, the statutory requirements that apply to MDAPs shall apply to such AIS programs.

4.8.2.3. ACAT I programs have two sub-categories: ACAT ID, for which the MDA is USD(AT&L) (the "D" refers to the Defense Acquisition Board (DAB), which advises the USD(AT&L) at major decision points) or ACAT IC, for which the MDA is the Head of the DoD Component or, if delegated, the DoD Component Acquisition Executive (CAE) (the "C" refers to Component).

4.8.2.4. Initially, all programs are treated as ACAT ID until formally designated ACAT IC by the USD(AT&L). At any time, the USD(AT&L) may delegate Milestone Decision Authority of an ACAT I program to the Head of the DoD Component who may redelegate to the CAE.

4.8.2.5. If the USD(AT&L) redesignates a formerly ACAT ID program as an ACAT IC program, the following direction shall apply:

4.8.2.5.1. Exit criteria established by the USD(AT&L) prior to the delegation of decision authority shall be maintained in effect unless the USD(AT&L) concurs with any changes.

4.8.2.5.2. The CAE shall approve Acquisition Program Baseline (APB) changes (reference (d)), including updates for threshold breaches, and provide a copy of the new APB to USD(AT&L).

4.8.2.5.3. Acquisition strategies, including CAIV objectives and LRIP quantities, established by the USD(AT&L) prior to the delegation of decision authority shall be maintained in effect during the phase for which approval was given, unless the USD(AT&L) concurs with any changes. When the next milestone approaches and an updated acquisition strategy is prepared for the next phase of the ACAT IC program, it shall not be subject to USD(AT&L) approval.

4.8.2.5.4. The OSD Cost Analysis Improvement Group (CAIG) shall not conduct Independent Cost Estimates for ACAT IC programs unless specifically requested by USD(AT&L). This request usually accompanies the designation of the program as ACAT IC. If the CAIG does not conduct an independent cost estimate, the Component cost analysis office shall provide a component cost analysis to the CAE for consideration at the appropriate decision point.

4.8.3. <u>ACAT IA</u>

4.8.3.1. ACAT IA programs are those programs that are MAISs or that are designated as ACAT IA by the MDA as a result of the MDA's special interest.

4.8.3.2. ACAT IA programs have two sub-categories: ACAT IAM for which the MDA is the Chief Information Officer (CIO) of the Department of Defense (DoD), the ASD(C3I) (the "M" (in ACAT IAM) refers to Major Automated Information System (MAIS)) or ACAT IAC, for which the DoD CIO has delegated milestone decision authority to the CAE or Component CIO (the "C" (in ACAT IAC) refers to Component).

4.8.3.3. The ASD(C3I) designates programs as ACAT IAM or ACAT IAC.

4.8.3.4. If the ASD(C3I) redesignates a formerly ACAT IAM program as an ACAT IAC program, the following direction shall apply:

4.8.3.4.1. Exit criteria established by the ASD(C3I) prior to the delegation of decision authority shall be maintained in effect unless the ASD(C3I) concurs with any changes.

4.8.3.4.2. The CAE or Component CIO shall approve Acquisition Program Baseline (APB) changes, including updates for threshold breaches, and provide a copy of the new APB to ASD(C3I).

4.8.3.4.3. Acquisition strategies, including CAIV objectives, established prior to the delegation of decision authority shall be maintained in effect during the phase for which

approval was given, unless the ASD(C3I) concurs with any changes. When the next milestone approaches and an updated acquisition strategy is prepared for the next phase of the ACAT IAC program, it shall not be subject to ASD(C3I) approval.

4.8.4. ACAT II. ACAT II programs are those programs that do not meet the criteria for an ACAT I program, but that are Major Systems or that are designated as ACAT II by the MDA as a result of the MDA's special interest. Because of the dollar values of MAISs, no AIS programs are ACAT II. The MDA is the CAE or the individual designated by the CAE.

4.8.5. ACAT III. ACAT III programs are defined as those acquisition programs that do not meet the criteria for an ACAT I, an ACAT IA, or an ACAT II. The MDA is designated by the CAE and shall be at the lowest appropriate level. This category includes less-than-major AISs.

4.8.6. Changes in ACAT Level

4.8.6.1. The DoD Component is responsible for notifying the USD(AT&L) or ASD(C3I) when cost growth or a change in acquisition strategy results in reclassifying a formerly lower ACAT program as an ACAT I or IA program. ACAT-level changes will be reported as soon as the Component suspects, within reasonable confidence, that the program is within 10 percent encroachment of the next ACAT level. ACAT-level reclassification will occur upon designation of the USD(AT&L) or the ASD(C3I).

4.8.6.2. The CAE shall request in writing a reclassification of an ACAT I or IA program to a lower acquisition category. The request shall identify the reasons for the reduction in category. The category reduction will become effective upon approval of the request by the USD(AT&L) or ASD(C3I).

4.8.6.3. The USD(AT&L) or ASD(C3I) may reclassify an acquisition program as ACAT ID or IAM at any time.

4.9. Program Management and Assessment. Acquisition programs require dedicated management. This part describes assignment of Program Managers, assignment of Program Executive Officers, and the use of Integrated Product Teams.

4.9.1. Assignment of Program Managers. A PM shall be designated for each acquisition program. This designation shall be made no later than program initiation. It is essential that the PM have an understanding of user needs and constraints, familiarity with development principles, and requisite management skills and experience. If the acquisition is for services, the PM shall be familiar with DoD guidance on acquisition of services. A PM and a deputy PM of an ACAT I or II program shall be assigned to the position at least until completion of the major milestone that occurs closest in time to the date on which the person has served in the position for four years in accordance with the Defense Acquisition Workforce Improvement Act (DAWIA) (reference (af)). Upon designation, the program manager shall be given budget guidance and a written charter of his or her authority, responsibility, and accountability for accomplishing approved program objectives.

4.9.2. Assignment of Program Executive Responsibility. Unless a waiver is granted for a particular program by the USD(AT&L) or the ASD(C3I), CAEs shall assign acquisition program responsibilities to a PEO for all ACAT I, ACAT IA, and sensitive classified programs, or for any other program determined by the CAE to require dedicated executive management. The PEO shall be dedicated to executive management and shall not have other command responsibilities. The CAE shall make this assignment no later than program initiation; or within three months of estimated total program cost reaching the appropriate dollar threshold for ACAT I and ACAT IA programs. CAEs may determine that a specific PM shall report directly, without being assigned to a PEO, whenever such direct reporting is appropriate. The CAE shall notify the USD(AT&L) or the ASD(C3I) of the decision to have a PM report directly to the CAE. Acquisition program responsibilities for programs not assigned to a PEO or a direct-reporting PM shall be assigned to a commander of a systems, logistics, or materiel command. In order to transition from a PEO to a commander of a systems, logistics, or materiel command, a program or block of capability shall, at a minimum, have passed Initial Operating Capability (IOC), have achieved full-rate production, be certified as interoperable within the intended operational environment, and be supportable as planned.

4.9.3. Integrated Product Teams in the Oversight and Review Process. Defense acquisition works best when all of the DoD Components work together cooperatively to share data and information of all types, and the workforce is empowered. Each DoD Component shall implement the concepts of Integrated Product and Process Development (IPPD) and Integrated Product Teams (IPTs) as extensively as possible. All appropriate functional disciplines and the DoD Components shall participate in IPTs to the maximum extent practical and useful.

4.9.4. Decision Reviews. At each milestone and other points in the process where desired by the MDA, the Milestone Decision Authority shall review each technology project or acquisition program. The MDA shall review the Program Manager's program, as informed by the IPT process, and the independent assessments required by law or the MDA's judgment.

5. EFFECTIVE DATE

This Instruction is effective immediately.

Under Secretary of Defense (Acquisition, Technology, and Logistics)	Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)	Director, Operational Test and Evaluation

Enclosures - 3
- E1. References, continued
- E2. Definitions
- E3. Statutory and Regulatory Information

E1. ENCLOSURE 1

References, continued

(f) USD(AT&L), ASD(C3I), and DOT&E Memorandum, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs," January 4, 2001 (hereby canceled)

(g) Under Secretary of Defense (AT&L), Assistant Secretary of Defense (C3I), and Director, Operational Test and Evaluation, "Defense Acquisition Policy Steering Group and Defense Acquisition Policy Working Group Charter," August 5, 1999

(h) Defense Acquisition Deskbook[1], current edition

(i) Chairman of the Joint Chiefs of Staff (CJCS) Instruction 3170.01B, "Requirements Generation System," April 15, 2001

(j) DoD 7000.14-R, "DoD Financial Management Regulation," Volumes 2A and 2B, "Budget Presentation and Formation," June 2000

(k) DoD Directive 5200.39, “Security, Intelligence, and Counterintelligence Support to Acquisition Program Protection,” September 10, 1997

(l) DoD Directive 5230.11, “Disclosure of Classified Military Information to Foreign Governments and International Organizations,” June 16, 1992

(m) Section 1401 et seq. of title 40, United States Code, "Clinger-Cohen Act of 1996"

(n) DoD Directive 8000.1, "Management of Department of Defense (DoD) Information Resources and Information Technology," February 27, 2002

(o) DoD Directive 8320.1, "DoD Data Administration," September 26, 1991

(p) DoD Directive 4630.5, "Interoperability of Information Technology (IT) and National Security System (NSS)," January 11, 2002

(q) DoD Instruction 4630.8, "Procedures for Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems," November 18, 1992

(r) CJCS Instruction 6212.01B, "Interoperability and Supportability on National Security Systems, and Information Technology Systems," May 14, 2000

(s) Federal Acquisition Regulation, Part 15.404-1, "Proposal Analysis Techniques," current edition

(t) Section 2350a of title 10, United States Code, "Cooperative Research and Development Programs: Allied Countries"

(u) Fiscal Year 2001 DoD Appropriations Act, Section 8102

(v) Section 794 of title 29, United States Code, "Rehabilitation Act"

(w) Section 2364 of title 10, United States Code, "Coordination and Communication of Defense Research Activities”

(x) Government Performance and Results Act

(y) Section 2366 of title 10, United States Code, "Major Systems and Munitions Programs: Survivability and Lethality Testing Required Before Full-scale Production"

[1] Copies may be obtained via Internet at www.deskbook.osd.mil

(z) Section 306 of title 5, United States Code, "Strategic Plans" (part of the Government Performance and Results Act)
(aa) Section 4321 et seq. of title 42, United States Code, "National Environmental Policy Act"
(ab) Executive Order 12114, “Environmental Effects Abroad of Major Federal Actions,” January 4, 1979
(ac) Section 139 of title 10, United States Code, "Director of Operational Test and Evaluation"
(ad) Section 2400 of title 10, United States Code, "Low-rate Initial Production of New Systems"
(ae) Section 3501 et seq. of title 44, United States Code, "Paperwork Reduction Act of 1980"
(af) Section 1734 of title 10, United States Code, "Career Development"
(ag) Section 2430 of title 10, United States Code, "Major Defense Acquisition Program Defined"
(ah) Section 2302d of title 10, United States Code, "Major System: Definitional Threshold Amounts"
(ai) DoD 5000.4-M, "Cost Analysis Guidance and Procedures," December 1992
(aj) Section 2377 of title 10, United States Code, "Preference for Acquisition of Commercial Items"
(ak) Section 2435 of title 10, United States Code, "Baseline Description"
(al) Section 2432 of title 10, United States Code, "Selected Acquisition Reports"
(am) Section 2433 of title 10, United States Code, "Unit Cost Reports"
(an) Section 2440 of title 10, United States Code, "Technology and Industrial Base Plans"
(ao) Section 2434 of title 10, United States Code, "Independent Cost Estimates; Operational Manpower Requirements"
(ap) Section 2399 of title 10, United States Code, "Operational Test and Evaluation of Defense Acquisition Programs"
(aq) Section 811 of the National Defense Authorization Act for Fiscal Year 2001
(ar) Section 305 of title 47, United States Code, "Government-Owned Stations"
(as) Section 104 of the National Telecommunications and Information Organization Act, "Spectrum Management Activities"
(at) Sections 901, 902, 903, and 904 of title 47, United States Code
(au) Section 2464 of title 10, United States Code, "Core "Logistics Functions"
(av) Section 2460 of title 10, United States Code, "Definition of Depot-Level Maintenance and Repair"
(aw) Section 2466 of title 10, United States Code, "Limitations on the Performance of Depot-Level Maintenance of Material"
(ax) Section 2469 of title 10, United States Code, "Contracts to Perform Workloads Previously Performed by Depot-Level Activities of the Department of Defense: Requirement of Competition"
(ay) DoD Directive 5105.21, "Defense Intelligence Agency," February 18, 1997
(az) DoD 5200.1-M, "Acquisition System Program Protection," March 16, 1994

E2. ENCLOSURE 2

DEFINITIONS

E2.1.1. Acquisition Executive. The individual within the Department and Components charged with overall acquisition management responsibilities within his or her respective organization. The Under Secretary of Defense for Acquisition, Technology, and Logistics is the Defense Acquisition Executive (DAE) responsible for all acquisition matters within the Department or Defense. The Component Acquisition Executives (CAEs) for each of the Components are the Secretary of the Military Departments or the Heads of Agencies with power of redelegation. The CAEs are responsible for all acquisition matters within their respective Component.

E2.1.2. Acquisition Program. A directed, funded effort designed to provide a new, improved, or continuing materiel, weapon, or information system or service capability in response to a validated operational or business need. Acquisition programs are divided into different categories that are established to facilitate decentralized decision-making, execution, and compliance with statutory requirements. Technology projects are not acquisition programs.

E2.1.3. Anti-Tampering (AT). The system engineering activities intended to prevent and/or delay exploitation of critical technologies in U.S. systems. These activities involve the entire life cycle of systems acquisition, including research, design, development, testing, implementation, and validation of anti-tampering measures. Properly employed, anti-tamper measures will add longevity to a critical technology by deterring efforts to reverse-engineer, exploit, or develop countermeasures against a system or system component.

E2.1.4. Automated Information System (AIS). An acquisition program that acquires Information Technology (IT), except IT that:

E2.1.4.1. Involves equipment that is an integral part of a weapon or weapons system; or

E2.1.4.2. Is a tactical communication system.

E2.1.5. Information Technology (IT). Any equipment, or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information.

E2.1.5.1. The term "equipment" means any equipment used by a Component directly or used by a contractor under a contract with the Component that requires the use of such equipment, or the use, to a significant extent, of such equipment in the performance of a service or the furnishing of a product.

E2.1.5.2. The term "IT" includes computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources. The term

"IT" also includes National Security Systems (NSSs). It does not include any equipment that is acquired by a Federal contractor incidental to a Federal contract.

E2.1.5.3. This definition is from the CCA (reference (m)).

E2.1.6. Integrated Product and Process Development (IPPD). A management process that integrates all activities from product concept through production and support, using a multifunctional team, to simultaneously optimize the product and its manufacturing and sustainment processes to meet cost, schedule, and performance objectives.

E2.1.7. Integrated Product Team (IPT). A multifunctional team assembled around a product or service, and responsible for advising the project leader, Program Manager, or MDA on cost, schedule, and performance of that product. There are three types of IPTs: Program IPTs, Working-level IPTs, and Overarching IPTs.

E2.1.8. Major Automated Information System (MAIS)

E2.1.8.1. An AIS that is designated by ASD(C3I) as a MAIS, or estimated to require program costs in any single year in excess of $32 million in fiscal year (FY) 2000 constant dollars, total program costs in excess of $126 million in FY 2000 constant dollars, or total life-cycle costs in excess of $378 million in FY 2000 constant dollars.

E2.1.8.2. MAISs do not include highly sensitive classified programs (as determined by the Secretary of Defense) or tactical communication systems.

E2.1.8.3. For the purpose of determining whether an AIS is a MAIS, the following shall be aggregated and considered a single AIS:

E2.1.8.3.1. The separate AISs that constitute a multi-element program.

E2.1.8.3.2. The separate AISs that make up an evolutionary or incrementally developed program.

E2.1.8.3.3. The separate AISs that make up a multi-DoD Component AIS program.

E2.1.9. Major Defense Acquisition Program (MDAP)

E2.1.9.1. An acquisition program that is not a highly sensitive classified program (as determined by the Secretary of Defense) and that is designated by the Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD(AT&L)) as an MDAP, or estimated by the USD(AT&L) to require an eventual total expenditure for research, development, test and evaluation of more than $365 million in fiscal year (FY) 2000 constant dollars or, for procurement, of more than $2.190 billion in FY 2000 constant dollars.

E2.1.9.2. The estimate shall consider all blocks that will make up an evolutionary acquisition program (to the extent that subsequent blocks can be defined).

E2.1.9.3. This definition is from 10 U.S.C. 2430 (reference (ag)). The dollar requirements are established in statute in FY 1990 dollars. The dollar amounts have been updated in accordance with procedures identified in the statute.

E2.1.10. Major System. A combination of elements that shall function together to produce the capabilities required to fulfill a mission need, including hardware, equipment, software, or any combination thereof, but excluding construction or other improvements to real property.

E2.1.10.1. A system shall be considered a major system if it is estimated by the DoD Component Head to require an eventual total expenditure for RDT&E of more than $140 million in FY 2000 constant dollars, or for procurement of more than $660 million in FY 2000 constant dollars, or if designated as major by the DoD Component Head (10 U.S.C. §2302d, reference (ah)).

E2.1.10.2. The estimate shall consider all blocks that will make up an evolutionary acquisition program (to the extent subsequent blocks can be defined).

E2.1.10.3. The dollar requirements are established in statute in FY 1990 dollars. The dollar amounts have been updated in accordance with procedures identified in the statute.

E2.1.11. Milestone Decision Authority (MDA). The individual designated in accordance with criteria established by the USD(AT&L), or by the ASD(C3I) for AIS acquisition programs, to approve entry of an acquisition program into the next phase of the acquisition process.

E2.1.12. Mission-Critical Information System. A system that meets the definitions of "information system" and "national security system" in the Clinger-Cohen Act, the loss of which would cause the stoppage of warfighter operations or direct mission support of warfighter operations. (Note: The designation of mission critical should be made by a Component Head, a CINC or their designee.) A Mission-Critical Information Technology System has the same meaning as a Mission-Critical Information System.

E2.1.13. Mission-Essential Information System. A system that meets the definition of "information system" in the Clinger-Cohen Act, that the acquiring Component Head or designee determines is basic and necessary for the accomplishment of the organizational mission. (Note: The designation of mission essential should be made by a Component Head, a CINC or their designee.) A Mission-Essential Information Technology System has the same meaning as a Mission-Essential Information System.

E2.1.14. National Security System (NSS). Any telecommunications or information system operated by the U.S. Government, the function, operation, or use of which:

E2.1.14.1. Involves intelligence activities;

E2.1.14.2. Involves cryptologic activities related to national security;

E2.1.14.3. Involves command and control of military forces;

E2.1.14.4. Involves equipment that is an integral part of a weapon or weapons system; or,

E2.1.14.5. Subject to the limitation below, is critical to the direct fulfillment of military or intelligence missions. This does not include a system that is to be used for routine administrative and business applications (including payroll, finance, logistics, and personnel management applications).

E2.1.14.6. This definition is from the Clinger-Cohen Act (reference (m)).

E2.1.15. Overarching Integrated Product Team (OIPT) Leader. The person in the Office of the Secretary of Defense who leads the Overarching Integrated Product Team and is responsible for providing an assessment of each assigned program. The OIPT Leader is not in the decision-making line of authority for programs.

E2.1.16. Program Executive Officer (PEO). A military or civilian official who has primary responsibility for directing several MDAPs and for assigned major system and non-major system acquisition programs. A PEO has no other command or staff responsibilities within the Component, and only reports to and receives guidance and direction from the DoD Component Acquisition Executive.

E2.1.17. Program Manager (PM). The individual designated in accordance with criteria established by the appropriate Component Acquisition Executive to manage an acquisition program and is appropriately certified under the provisions of the DAWIA (reference (af)). A PM has no other command or staff responsibilities within the Component.

E2.1.18. Requirements Authority. The individual within the DoD Components charged with overall requirements definition and validation. The Vice-Chairman of the Joint Chiefs of Staff, in the role as Chairman of the JROC, is the requirements authority for all potential major defense acquisition programs and is responsible for all requirements policy and procedures, including MNSs, CRDs, and ORDs. The Requirements Authority for other acquisition category programs is specified in reference (i).

E2.1.19. Technology Project. A directed, incrementally funded effort designed to provide new capability in response to technological opportunities or an operational or business (e.g., accounting, inventory cataloging, etc.) need. Technology projects are "pre-systems acquisition," do not have an acquisition category, and precede program initiation. Technology is the output of the science and technology program that is used in systems acquisition. The decision authority and information necessary for decision-making on each project shall be specified by the appropriate S&T Executive (for projects not yet approved for Milestone A) or by the MDA (for projects past Milestone A).

E2.1.20. Total Ownership Cost (TOC). The sum of financial resources to organize, equip, sustain, and operate military forces to meet national goals, policies, and standards of readiness,

environmental compliance, safety, and quality of life concerns. The TOC for Defense systems consists of the costs to research, develop, acquire, own, operate, and dispose of weapon and support systems. It includes direct costs and indirect costs attributable to the systems and infrastructure costs not directly attributable to the system. Product support mainly concerns the portion of TOC that occurs after the system is deployed (the sustainment and disposal phase of a system's life cycle). For purposes of costing, the PM shall use life-cycle costs as defined in DoD 5000.4-M (reference (ai)).

E2.1.21. Weapon System. An item or set of items that can be used directly by warfighters to carry out combat or combat support missions to include tactical communication systems.

E3. ENCLOSURE 3

STATUTORY AND REGULATORY INFORMATION

E3.1.1. Tables 1 and 2, below, show the information requirements for all milestones, both statutory and regulatory.

For AIS programs, the information in this table except for CCA compliance is regulatory, not statutory, unless otherwise stated or the AIS is a MDAP. Acquisition Program Baselines and Industrial Capabilities, below, for MDAPs are required by the statute cited. For non-MDAPs, they are required by this Instruction.

E3.T1. Table 1. Statutory Information Requirements

INFORMATION REQUIRED	APPLICABLE STATUTE	WHEN REQUIRED
Consideration of Technology Issues	10 U.S.C. § 2364 (reference (w))	Milestone (MS) A MS B MS C
Market Research	10 U.S.C. §2377 (reference (aj))	Technology Opportunities User Needs MS A MS B
Acquisition Program Baseline (APB)	10 U.S.C. §2435 (reference (ak))	Component Advanced Development Decision Review (DR) (if Program Initiation) MS B MS C (updated, as necessary) Full-Rate Production DR
Compliance with Strategic Plan (as part of the analysis of alternatives, whenever practical)	5 U.S.C. §306 (reference (z))	MS B MS C
Selected Acquisition Report (SAR) (MDAPs only) Unit Cost Report (UCR) (MDAPs only)	10 U.S.C. §2432 (reference (al)) 10 U.S.C. §2433 (reference (am))	Component Advanced Development DR (if Program Initiation) MS B MS C Full-Rate Production DR
Live Fire Waiver & alternate LFT&E Plan (Covered Systems only)	10 U.S.C. §2366 (reference (y))	MS B
Industrial Capabilities (part of acquisition strategy) (N/A for AISs)	10 U.S.C. §2440 (reference (an))	MS B MS C
LRIP Quantities (N/A for AISs)	10 U.S.C. §2400 (reference (ad))	MS B
Independent Cost Estimate and Manpower Estimate (N/A for AISs) (MDAPs Only)	10 U.S.C. §2434 (reference (ao)) DoDI 5000.2 (this Instruction)	MS B MS C (ICE only) Full-Rate Production DR
Operational Test Plan (DOT&E Oversight Programs only)	10 U.S.C. §2399 (reference (ap))	Prior to start of operational test and evaluation
Cooperative Opportunities (part of acquisition strategy)	10 U.S.C. §2350a (reference (t))	MS B MS C
Post-Deployment Performance Review	5 U.S.C. §306 (reference (z)) 40 U.S.C. §1401 et seq. (reference (m))	Full-Rate Production DR

E3.T1. Table 1. Statuatory Information Requirements, continued

INFORMATION REQUIRED	APPLICABLE STATUTE	WHEN REQUIRED
Beyond-LRIP Report (OSD T&E Oversight programs only)	10 U.S.C. §2399 (reference (ap))	Full-Rate Production DR
LFT&E Report (OSD-covered programs only)	10 U.S.C. §2366 (reference (y))	Full-Rate Production DR
Clinger-Cohen Act (CCA) Compliance (All IT – including NSS) (See Table 3)	40 U.S.C. §1401 et seq. (reference (m))	Component Advanced Development DR (if Program Initiation) MS B MS C Full-Rate Production DR
CCA Certification to Congressional Defense Committees for MAIS (See Table 3)	Pub. L. 106-259, Section 8102 (reference (u))	Component Advanced Development DR (if Program Initiation) MS B MS C Full-Rate Production DR
Registration of mission-critical and mission-essential information systems	Pub.L. 106-259, Section 8102 (reference (u)) Pub.L. 106-398, Section 811 (reference (aq))	Component Advanced Development DR (if Program Initiation) MS B (if Program Initiation) MS C (if Program Initiation)
Application for Frequency Allocation (DD Form 1494) (applicable to all systems/equipment that require utilization of the electromagnetic spectrum)	47 U.S.C. §305 (reference (ar)) Pub. L. 102-538, §104 (reference (as)) 47 U.S.C. §901-904 (reference (at))	MS B MS C (if no MS B)
National Environmental Policy Act Schedule	42 U.S.C. §4321 (reference (aa))	Component Advanced Development DR (if Program Initiation) MS B MS C Full-Rate Production DR
Core Logistics Analysis/Source of Repair Analysis (part of acquisition strategy)	10 U.S.C. §2464 (reference (au)) 10 U.S.C. §2460 (reference (av)) 10 U.S.C. §2466 (reference (aw))	MS B MS C (if no MS B)
Competition Analysis (Depot-level Maintenance $3M rule) (part of acquisition strategy)	10.U.S.C. §2469 (reference (ax))	MS B MS C (if no MS B)

E3.1.2. All requirements are from this Instruction or reference (d), unless otherwise noted.

E3.T2. Table 2. Regulatory Information Requirements

INFORMATION REQUIRED	WHEN REQUIRED
Validated Mission Need Statement (MNS) (source: CJCS Instruction 3170.01B, reference (i))	MS A
Validated Operational Requirements Document (ORD) (source: CJCS Instruction 3170.01B, reference (i))	Component Advanced Development DR (if Program Initiation) MS B MS C
Acquisition Strategy	Component Advanced Development DR (if Program Initiation) MS B MS C Full-Rate Production DR

E3.T2. Table 2. Regulatory Information Requirements, continued

INFORMATION REQUIRED	WHEN REQUIRED
Analysis of Multiple Concepts	MS A
Analysis of Alternatives (AoA)	MS B MS C (if no MS B)
System Threat Assessment (as required for AISs) (validated by DIA for ACAT ID programs) (source: DoD Directive 5105.21 (reference (ay)))	MS B MS C
Independent Technology Assessment	MS B MS C
C4ISP (also summarized in the acquisition strategy)	Component Advanced Development DR (if Program Initiation) MS B MS C
C4I Supportability Certification	Full-Rate Production DR
Interoperability Certification	Full-Rate Production DR
Affordability Assessment	MS B MS C
Economic Analysis (MAISs only)	MS B
Component Cost Analysis (mandatory for MAIS; as requested by CAE for MDAP)	MS B (for MAIS, each time the MDA requests an Economic Analysis) Full-Rate Production DR (MDAPs only)
Cost Analysis Requirements Description (MDAPs and MAIS Acquisition Programs only)	MS B MS C Full-Rate Production DR
Test and Evaluation Master Plan (TEMP)	MS A (evaluation strategy only) MS B MS C (update, if necessary) Full-Rate Production DR
Operational Test Activity Report of Operational Test and Evaluation Results	MS B MS C Full-Rate Production DR
Component Live Fire Test and Evaluation Report (Covered Systems Only)	Completion of Live Fire Test and Evaluation
Program Protection Plan (PPP) (also summarized in the acquisition strategy) (source: DoD 5200.1-M, reference (az))	MS B (based on validated requirements in ORD) MS C
Exit Criteria	MS A MS B MS C Each Review
ADM	MS A MS B MS C Each Review

E3.T3. Table 3 Mission Critical/Mission Essential IT Requirements

Mission-Critical and Mission-Essential Information Systems As required by Sec. 8102(b) of the DoD Appropriations Act, 2001 (Pub. L. 106-398, Section 811):	Mission Critical (MC) or Mission Essential (ME)					Non-MC or ME			DODI 5000.2 Sections
	NSS MDAP (MC)	NSS (non-MDAP) (MC or ME)	AIS (MC or ME)	MAIS (ME)	IT System (non-program) (ME)	NSS (lower than ACAT I or IA)	AIS (lower than ACAT I or IA)	IT System (non-programs)	
Comply with CCA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	4.7.3.2.3.2 thru 4.7.3.2.3.2.4 and 4.7.3.3.3.2 thru 4.7.3.3.3.2.2
Confirm CCA Compliance to MDA	Yes	Yes	Yes	Yes	Yes	No	No	No	4.7.3.2.3.2 thru 4.7.3.2.3.2.4
Certify CCA Compliance to DOD CIO	No	No	No	Yes	No	No	No	No	4.7.3.2.3.2 thru 4.7.3.2.3.2.4
Register System with DOD CIO	Yes	Yes	Yes	Yes	Yes	No	No	No	4.7.3.2.3.2.1.11
No contracts awarded until: 1) System is registered with DOD CIO 2) DOD CIO determines information assurance strategy is appropriate 3) System being developed IAW CCA	Yes	Yes	Yes	Yes	Yes	No	No	No	4.7.3.1.5 and 4.7.3.1.5.1