THE DEPUTY SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301-1000

OCT 30 2002

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
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DIRECTOR, NET ASSESSMENT
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTORS OF DOD FIELD ACTIVITIES

SUBJECT: Defense Acquisition

I have determined that the current DoD Directive 5000.1, "The Defense Acquisition System," DoD Instruction 5000.2, "The Operation of the Defense Acquisition System," and DoD 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs," require revision to create an acquisition policy environment that fosters efficiency, flexibility, creativity, and innovation. Therefore, by separate memorandum, I have cancelled those documents effective immediately.

By this memorandum, I am issuing the attached interim guidance in place of the cancelled documents. The intent of the guidance is to rapidly deliver affordable, sustainable capability to the warfighter that meets the warfighter's needs. Additional, supporting discretionary, best practices, lessons learned, and expectations have been posted to the DoD 5000 Resource Center at http://dod5000.dau.mil.

I am directing the Under Secretary of Defense for Acquisition, Technology, and Logistics, with the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) and the Director, Operational Test and Evaluation, to jointly prepare revised documents within 120 days.

Paul Wolfowitz

Attachments:
As stated

U16167-02

SUBJECT: The Defense Acquisition System

References:

(a) Secretary of Defense Memorandum, *Defense Acquisition*, Attachment 2, *Operation of the Defense Acquisition System,* September xx, 2002
(b) Chairman of the Joint Chiefs of Staff Instruction 3170.01 Series, *Requirements Generation System*, current edition
(c) Federal Acquisition Regulation (FAR), current edition
(d) Defense Federal Acquisition Regulation (DFAR) Supplement, current edition
(e) Secretary of Defense Memorandum, *Missile Defense Program Direction*, January 2, 2002
(f) DoD Directive 4630.5, *Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)*, January 11, 2002
(g) DoD Directive 2060.1, *Implementation of, and Compliance with, Arms Control Agreements*, January 9, 2001
(h) Section 2350a of title 10, United States Code, *Cooperative Research and Development Projects: Allied Countries*
(i) Section 2751 of title 22, United States Code, *Need for international defense cooperation and military export controls; Presidential waiver; report to Congress; arms sales policy*
(j) Section 2531 of title 10, United States Code, *Defense memoranda of understanding and related agreements*

1. PURPOSE

This Attachment:

1.1. Provides policies and principles for all Department of Defense (DoD) acquisition programs.

1.2. Describes management principles applicable to all DoD acquisition programs. Reference (a) describes a simple and flexible approach for managing all acquisition programs. Reference (b) establishes policies and procedures for the DoD requirements generation system.

1.3. This Attachment and reference (a) provide mandatory policies and procedures for the management of acquisition programs, except when statutory requirements override. If there is any conflicting guidance pertaining to contracting, the Federal Acquisition Regulation (FAR) (reference (c)) and/or the Defense FAR (DFAR) Supplement (reference (d)) shall take precedence.

2. APPLICABILITY

2.1. This Attachment applies to the Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff, the Combatant Commands, Office of the Inspector General of the Department of Defense, the Defense Agencies, DoD Field Activities, and all organizational entities within the Department of Defense (hereafter collectively referred to as "the DoD Components"). The Missile Defense Agency shall operate as directed in reference (e).

2.2. The policies in this Attachment apply to all on-going acquisition programs regardless of their stage of development.

3. POLICY

The following principles and policies govern the operation of the Defense Acquisition System.

3.1. Decentralize Responsibility. Responsibility for acquisition of systems shall be decentralized to the maximum extent practicable. A single individual shall be provided sufficient authority to accomplish program objectives for development, production, and sustainment. The Milestone Decision Authority (MDA) shall ensure accountability and maximize credibility in cost, schedule, and performance reporting.

3.2. Tailoring. There is no one best way to structure an acquisition program so that it accomplishes the objectives of the Defense Acquisition System. Decision-makers and program managers (PMs) shall tailor various aspects of the acquisition system, including program documentation, acquisition phases, the timing and scope of decision reviews, decision levels, and acquisition strategies to fit the particular conditions of an individual program and minimize the time it takes to satisfy the validated need or exploit the technology opportunity, consistent with common sense, sound business management practice, applicable laws and regulations, and the time-sensitive nature of the user's requirement. MDAs shall promote flexible approaches to oversight and review based on mutual trust and a program's dollar value, risk, and complexity.

3.3. Innovation, Continuous Improvement, and Lessons Learned. The Department shall continuously develop and implement initiatives to streamline and improve the Defense Acquisition System. Decision-makers at all levels shall encourage the continuous examination and adoption of innovative practices – including best commercial practices and electronic business solutions - that reduce cycle time and cost, and encourage teamwork, and shall provide meaningful incentives for innovation, such as reinvestment of cost savings and career recognition and advancement. In addition, decision-makers at all levels shall encourage and facilitate the documentation and institutionalization of lessons learned – both good and bad - from past experience.

3.4. Technology Development and Transition. The S&T program shall address user needs; maintain a broad-based program spanning all Defense-relevant sciences and technologies to anticipate future needs and those not being pursued by civil or commercial communities; preserve long-range research; and enable rapid successful transition from the S&T base to useful military products.

3.5. Reduced Cycle Time. Advanced technology shall be integrated into producible systems and deployed in the shortest time practicable. Validated, time-phased requirements matched with projected capability needs and available technology support the development of evolutionary acquisition strategies. Evolutionary acquisition strategies shall be the preferred approach to satisfying operational needs. Spiral development shall be the preferred process.

3.6. Collaboration. The Defense acquisition, requirements, and financial communities shall maintain continuous and effective communications with each other and with the operational user through the use of Integrated Product Teams. Teaming among warfighters, users, developers, acquirers, technologists, industry, testers, budgeters, and sustainers shall begin during requirements definition. PMs and MDAs shall be responsible for making decisions and leading implementation of their programs, and are accountable for results.

3.7. Interoperability. 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. Interoperability shall apply within and among United States forces and U.S. coalition partners. Mission-area-focused, integrated architectures shall be used to characterize these interrelationships. DoD policy for interoperability and supportability of information technology, including National Security Systems appears in DoD Directive 4630.5, reference (f).

3.8. Information Superiority. The Defense acquisition community shall provide U.S. forces with systems and families of systems that are secure, reliable, interoperable, and able to communicate across a universal information technology infrastructure, including National Security Systems, consisting of data, information, processes, organizational interactions, skills, analytical expertise, other systems, networks, and information exchange capabilities.

3.9. Research and Technology Protection. The identification of sensitive information and technologies, both classified and unclassified, shall be accomplished early in the acquisition process.

3.10. Information Assurance. Mission Critical/Mission Essential systems shall incorporate adequate information assurance. In particular, systems that interface with the DoD Global Information Grid require heightened information assurance to protect the network. Information assurance shall be addressed early in the requirements generation and acquisition processes.

3.11. Intelligence Support. Intelligence, and understanding threat capabilities, is integral to system development and acquisition decisions. Threat capabilities shall be kept current and validated in program documents throughout the acquisition process.

3.12. Performance-Based Acquisition. In order to maximize competition, innovation, and interoperability, and to enable greater flexibility in capitalizing on commercial technologies to reduce costs, performance-based strategies for the acquisition and sustainment of products and services shall be considered and used whenever practical. For products, this includes all new procurements and major modifications and upgrades, as well as the reprocurement of systems, subsystems, and spares that are procured beyond the initial production contract award. When using performance-based strategies, contractual requirements shall be stated in performance terms, limiting the use of military specifications and standards to Government-unique requirements only. Configuration management decisions shall be based on factors that best support implementation of performance-based strategies throughout the product life cycle.

3.13. Competition. Competition is critical for providing innovation, product quality, and affordability. All DoD Components shall acquire systems, subsystems, equipment, supplies, and services in accordance with the statutory requirements for competition. Competition provides major incentives to industry and Government organizations to reduce cost and increase quality. The Department shall take all necessary actions to promote a competitive environment, including examination of alternative systems to meet stated mission needs; structuring S&T investments and acquisition strategies to ensure the availability of competitive suppliers throughout a program's life and for future programs; ensuring that prime contractors foster effective competition for major and critical products and technologies; and ensuring qualified international sources are permitted to compete. If competition is not available, PMs shall devise incentives to motivate contractors in a way that will yield the benefits of competition.

3.14. Knowledge-Based Acquisition. Knowledge about key aspects of a system shall be demonstrated by the time decisions are to be made. Technology risk shall be reduced and technologies shall have been demonstrated in a relevant environment, with alternatives identified, prior to program initiation. Integration risk shall be reduced and product design demonstrated prior to critical design review. Manufacturing risk shall be reduced and producibility demonstrated prior to full-rate production.

3.15. Systems Engineering. Acquisition programs shall be managed through the application of a systems engineering approach that optimizes total system performance and minimizes total ownership costs.

3.16. Products, Services, and Technologies. The DoD Component(s) shall consider multiple concepts and analyze possible alternative ways to satisfy the user need. System concepts shall be founded in an operational context, consistent with the National Military Security Strategy, Defense Planning Guidance, and Joint Operating Concepts. DoD Components shall seek the most cost-effective solution over the system's life cycle. They shall conduct market research and analysis to determine the availability, suitability, operational supportability, interoperability, and ease of integration of the considered and selected procurement solutions. The DoD Components shall work with users to define requirements that facilitate, in preferred order, (1) the procurement/modification of commercially available products, services, and technologies, from domestic or international sources, or the development of dual-use technologies; (2) the additional production/ modification of previously-developed U.S. and/or Allied military systems or equipment; (3) a cooperative development program with one or more Allied nations; (4) a new joint Component or Government Agency development program; or (5) a new DoD Component-unique development program.

3.17. Integrated Test and Evaluation. Test and evaluation shall be integrated throughout the defense acquisition process. Test and evaluation shall be structured to provide essential information to decision-makers, assess attainment of technical performance parameters, and determine whether systems are operationally effective, suitable, and survivable for intended use. The conduct of test and evaluation, integrated with modeling and simulation, shall facilitate learning, assess technical maturity and interoperability, facilitate integration into fielded forces, and confirm performance.

3.18. Total Systems Approach. The PM shall be the single point of accountability for accomplishment of program objectives for total life cycle systems management, including sustainment. The PM shall adopt a human systems integration approach to optimize total system performance (hardware, software, and human) and when assessing system effectiveness, suitability, and survivability. Planning for Operation and Support shall begin as early as possible.

3.19. Performance-Based Logistics. PMs shall develop and implement performance-based logistics strategies that optimize total system availability while minimizing cost and logistics footprint. Sustainment strategies shall include the best use of public and private sector capabilities through government/industry partnering initiatives, in accordance with statutory requirements.

3.20. Program Goals. PMs shall implement management controls. Every acquisition program shall establish program goals for the minimum number of cost, schedule, and performance parameters that describe the program over its life cycle. Approved program

baseline parameters shall serve as control objectives. PMs shall identify deviations from approved acquisition program baseline parameters and exit criteria as material weaknesses.

3.21. Legal Compliance. DoD acquisition and procurement of weapons and weapon systems shall be consistent with all applicable domestic law and treaties (for arms control agreements, see DoDD 2060.1, reference (g)), customary international law, and the law of armed conflict (also known as the laws and customs of war). DoD General Counsels or a Military Service Judge Advocate General shall conduct legal review of the intended acquisition of weapons or weapon systems.

3.22. International Agreements. International cooperative programs shall complete the interagency consultation and Congressional notification requirements contained in 10 U.S.C. 2350a (reference (h)), section 27 of the Arms Export Control Act (reference (i)), and 10 U.S.C. 2531 (reference (j)).

3.23. Cost and Affordability. Fiscal constraint is a reality that all participants in the acquisition system must recognize. Cost shall be viewed as an independent variable, and the DoD Components shall plan programs based on realistic resource projections of dollars and manpower likely to be available in future years. To the greatest extent possible, the DoD Components shall identify the total costs of ownership, and at a minimum, the major drivers of total ownership costs. The user shall treat cost as a military requirement and state the amount the Department should be willing to invest to obtain, operate, and support the needed capability over its expected life cycle.

3.24. Cost Realism. The DoD Component shall strive for cost realism and to identify cost risks before contract award. They shall require cost realism and continue to monitor risks after contract award. Cost proposals shall be evaluated to ensure cost-realism in accordance with the Federal Acquisition Regulation (reference (c)). 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. Costs shall be evaluated to ensure cost-realism (based on knowledge gained during the acquisition process).

3.25. Cost Sharing. 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 nor 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.

3.26. Program Stability. The DoD Components shall develop realistic program schedules, long-range investment plans, and affordability assessments, and shall strive to ensure stable program funding. The MDA shall determine the appropriate point at which to fully fund an acquisition program, generally when a system concept and design have been selected, a PM has been assigned, requirements have been approved, and system-level development is ready to begin. Full funding shall be based on the cost of the most likely system alternative.

3.27. Program Information. It shall be DoD policy to minimize reporting requirements. Nevertheless, complete and current program information is essential to the acquisition process.

Consistent with the tables of required regulatory and statutory information appearing in reference (a), decision authorities shall require PMs and other participants in the defense acquisition process to present only the minimum information necessary to understand program status and make informed decisions. The MDA shall "tailor-in" program information. IPTs shall facilitate the management and exchange of program information.

3.28. Independent Operational Test Agency (OTA). Each Military Department shall establish an independent OTA, reporting directly to the Service Chief, to plan and conduct operational tests, report results, and provide evaluations of effectiveness, suitability, and survivability.

3.29. Streamlined Organizations. The Department shall use a streamlined management structure in the acquisition system characterized by short, clearly defined lines of responsibility, authority, and accountability. In no case, shall there be more than two levels of review between a PM and the MDA.

3.30. Professional Workforce. The Department of Defense shall maintain a fully proficient acquisition, technology, and logistics workforce that is flexible and highly skilled across a range of management, technical, and business disciplines. To ensure this, the USD(AT&L) shall establish education, training, and experience standards for each acquisition position based on the level of complexity of duties carried out in that position.

4. EFFECTIVE DATE

This Attachment is effective immediately.

SUBJECT: Operation of the Defense Acquisition System

References:

(a) Secretary of Defense Memorandum, *Defense Acquisition*, Attachment 1, *The Defense Acquisition System,* September xx, 2002
(b) OMB Circular A-11, *Preparing, Submitting, and Executing the Budget*, June 27, 2002
(c) OMB Circular A-109, *Major Systems Acquisitions*, April 1976
(d) Secretary of Defense Memorandum, *Missile Defense Program Direction*, January 2, 2002
(e) Chairman of the Joint Chiefs of Staff Instruction 3170.01 Series, *Requirements Generation System*, current edition
(f) through (av), see Tab A

1. PURPOSE

This Attachment:

1.1. Implements reference (a), the guidelines of references (b) and (c), and current laws.

1.2. 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.

1.3. Consistent with statutory requirements and reference (a), authorizes Milestone Decision Authorities (MDAs) to tailor procedures to achieve cost, schedule, and performance goals.

2. APPLICABILITY AND SCOPE

This Attachment 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"). The Missile Defense Agency shall operate as directed by reference (d).

2.2. All defense technology projects and acquisition programs. Some requirements, where stated, apply only to Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) programs.

2.3. In general, highly sensitive classified, cryptologic, and intelligence projects and programs shall follow the guidance in this Attachment and reference (a) for technology projects and acquisition programs of equivalent acquisition category.

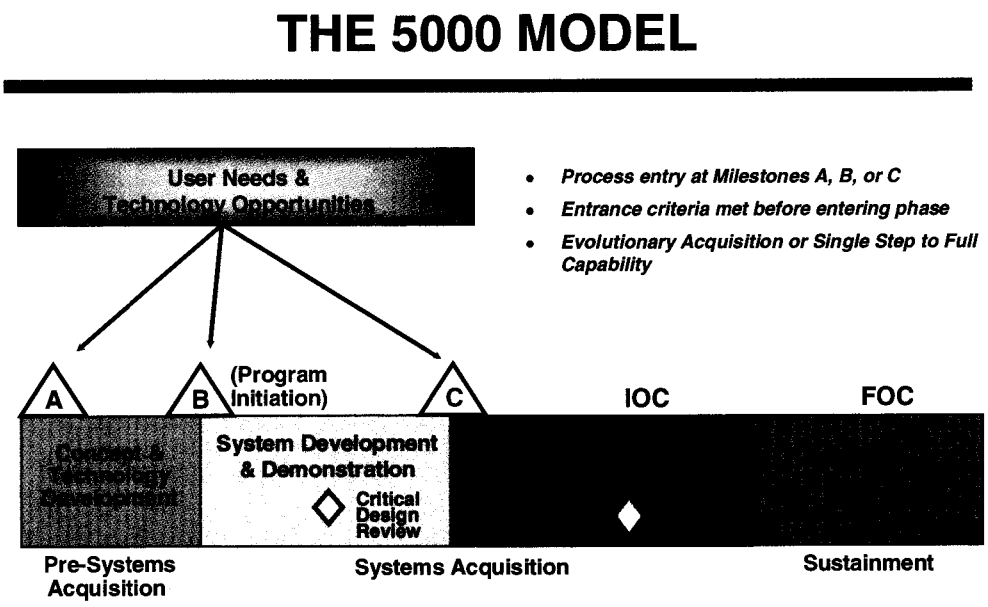

Figure 1

3. PROCEDURES

3.1. Defense Acquisition Management Framework. Figure 1 is a graphic representation of the Defense acquisition management framework.

3.1.1. Consistent with reference (a), the program manager (PM) and the MDA shall exercise discretion and prudent business judgment to structure a tailored, responsive, and innovative program.

3.1.2. The MDA may authorize entry into the acquisition system at any point, consistent with phase-specific entrance criteria. Progress through the acquisition life cycle depends on obtaining sufficient knowledge to continue to the next stage of development. The lack of adequate knowledge delays the delivery of capability.

3.1.3. The tables at Tab C identify the statutory and regulatory information requirements of each milestone and decision point. Additional non-mandatory guidance on best practices, lessons learned, and expectations are available in a guidebook at www.acq.osd.mil/ar.

3.2. Requirements and Acquisition Integration

3.2.1. Integrated Architectures

3.2.1.1. Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD(AT&L)) and Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD(C3I)) Joint Staff, Military Departments, Defense Agencies, Combatant Commanders, and other appropriate DoD Components shall work collaboratively to develop joint integrated architectures for capability areas as agreed to by the Joint Staff.

3.2.1.2. Each joint, mission area, integrated architecture will have three views: operational, systems, and technical, as defined in the current Architectural Framework guidance and have direct relationships to DoD Component-developed mission area integrated

architectures. The Joint Staff (or Principal Staff Assistant for business areas) shall lead development of the operational view, in collaboration with the Services, Agencies, and Combatant Commanders, to describe the joint capabilities that the user seeks and how to employ them. USD(AT&L) (or Principal Staff Assistant for business areas) shall lead development of the systems view, in collaboration with the Services, Agencies, and Combatant Commanders, to characterize available technology and systems functionality. The systems view shall identify the kinds of systems and integration needed to achieve the desired operational capability. The DoD CIO shall lead the development and facilitate the implementation of the Global Information Grid Integrated Architecture which shall underpin all mission area and capability architectures. The Military Departments and Defense Agencies shall participate in the identification of the appropriate technical view consisting of standards that define and clarify the individual systems technical and integration requirements.

3.2.2. Integrated Capability Assessments, Capability Roadmaps, and Investment Strategies. Using the integrated architectures, USD(AT&L) will lead development of integrated plans or roadmaps to guide systems development and the associated investment plans and to conduct capability assessments as the basis of aligning resources as an input to the Defense Planning Guidance, Program Objective Memorandum development, and Program and Budget Reviews.

3.3. Evolutionary Acquisition

3.3.1. Evolutionary acquisition is DoD's preferred strategy for rapid acquisition of mature technology for the user. An evolutionary approach delivers capability in increments, recognizing, up front, the need for future capability improvements. The success of the strategy depends on the consistent and continuous definition of requirements and the maturation of technologies that lead to disciplined development and production of systems that provide increasing capability towards a materiel concept. (See Figure 2.)

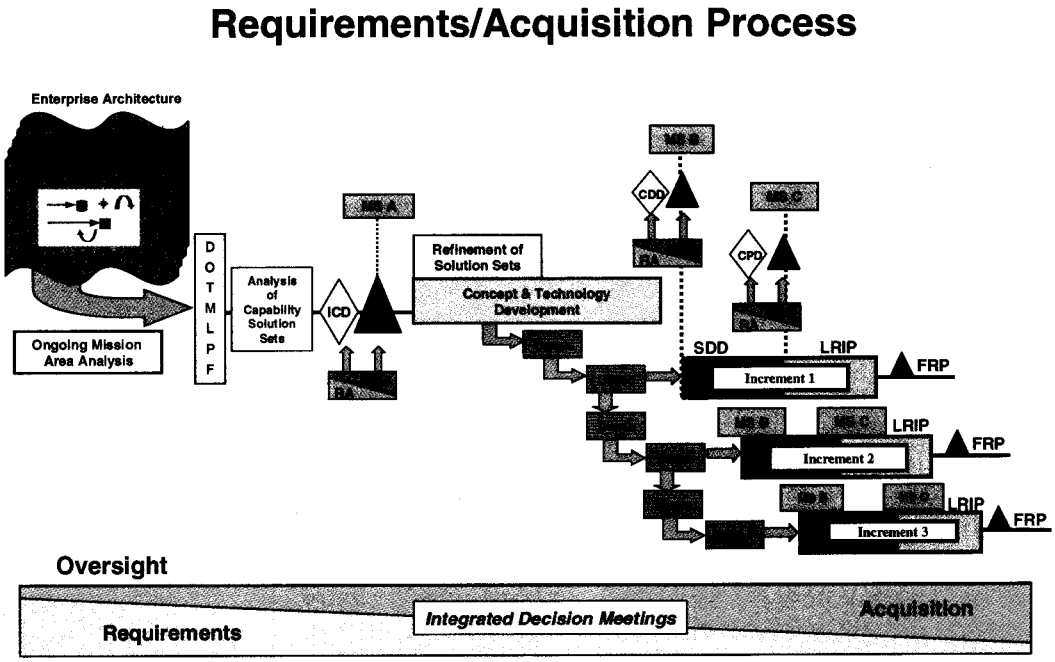

Figure 2

3.3.2. The approaches to achieve evolutionary acquisition require collaboration between the user, tester, and developer. They include the following:

3.3.2.1. Spiral Development. In this process, a desired capability is identified, but the end-state requirements are not known at program initiation. Those requirements are refined through demonstration and risk management; there is continuous user feedback; and each increment provides the user the best possible capability. The requirements for future increments depend on feedback from users and technology maturation.

3.3.2.2. Incremental Development. In this process, a desired capability is identified, an end-state requirement is known, and that requirement is met over time by development of several increments, each dependent on available mature technology.

3.4. User Needs and Technology Opportunities. The requirements generation and acquisition management systems shall use the integrated architectures and an analysis of doctrine, organization, training, materiel, leadership, personnel, and facilities (DOTMLPF) in an integrated, collaborative process to define desired capabilities to guide the development of systems. The Joint Staff shall lead requirements generation, and all documentation and procedures shall comply with reference (e). Representatives from multiple DoD communities shall assist in the formulation of broad, time-phased, operational goals, and describe requisite capabilities in the Initial Capabilities Document (ICD). They shall examine multiple concepts and alternatives to optimize the way the Department of Defense provides these capabilities. The examination shall include robust analyses that consider affordability, technology maturity, and responsiveness. Technologists and industry shall identify and protect promising technologies in laboratories and research centers, academia, and commercial sources; reduce the risks of introducing these technologies into the acquisition process; and promote coordination, cooperation, and mutual understanding of technology issues. The conduct of Science & Technology (S&T) activities shall not preclude, and where practicable, shall facilitate future competition.

3.5. Concept and Technology Development

3.5.1. Purpose. The purpose of this phase is to refine the initial concept and reduce technical risk. Concept and Technology Development has two major efforts: Concept Exploration and Technology Development. The phase begins with a Milestone A decision to enter Concept and Technology Development. At Milestone A, the MDA shall designate a lead DoD Component and approve Concept and Technology Development exit criteria. 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 ICD will be evaluated once the system is developed. A favorable Milestone A decision DOES NOT yet mean that a new acquisition program has been initiated. The tables in Tab C identify all statutory and regulatory requirements applicable to Milestone A.

3.5.2. Entrance Criteria. Entrance into this phase depends upon a validated and approved ICD resulting from the analysis of potential concepts across the DoD Components, international systems from Allies, and cooperative opportunities; and an assessment of the critical technologies associated with these concepts, including technology maturity, technology risk, and, if necessary, technology maturation and demonstration needs.

3.5.3. Concept Exploration. Concept Exploration typically consists of competitive, parallel, short-term concept studies guided by the ICD. The focus of these studies is to refine and evaluate the feasibility of alternative solutions to the initial concept, and to provide a basis for assessing the relative merits of these solutions. Analyses of alternatives shall be used to facilitate comparisons. In order to achieve the best possible system solution, emphasis shall be placed on innovation and competition. To this end, participation by a diversified range of businesses should be encouraged. This work effort ends when the MDA selects the preferred solution to be pursued.

3.5.4. Technology Development. Technology Development is a continuous technology discovery and development process reflecting close collaboration between the user and the system developer. It is an iterative process designed to assess the viability of technologies while simultaneously refining user requirements.

3.5.4.1. The project shall enter Technology Development when the project leader has a solution for the needed capability and understands the solution as a part of the integrated architecture and its DOTMLPF implications. Technology Development is intended to reduce technology risk and to determine the appropriate set of technologies to be integrated into a full system. This work effort normally shall be funded only for the advanced development work. Shipbuilding programs may be initiated at the beginning of Technology Development. The information required in the tables at Tab C shall support program initiation. A cost assessment shall be prepared in lieu of an ICE, and a preliminary assessment of the maturity of key technologies shall be provided.

3.5.4.2. The ICD shall guide this work effort. Multiple technology development demonstrations may be necessary before the user and developer agree that a proposed technical solution is affordable, militarily useful, and based on mature technology.

3.5.4.3. If time-phased requirements are used, the initial capability represents only partial fulfillment of the overall capability described in the ICD, and successive technology development efforts shall continue until all capabilities have been satisfied. In a spiral development process, the identification and development of the technologies necessary for follow-on increments continues in parallel with the acquisition of preceding increments, allowing the mature technologies to more rapidly proceed into System Development and Demonstration.

3.5.4.4. The project shall exit Technology Development when an affordable increment of militarily-useful capability has been identified, the technology for that increment has been demonstrated in a relevant environment, and a system can be developed for production within a short timeframe (normally less than five years); or when the MDA decides to terminate the effort. During Technology Development, the user shall prepare the Capabilities Development Document (CDD) to support subsequent program initiation and to refine the integrated architecture. A Milestone B decision follows the completion of Technology Development.

3.6. System Development and Demonstration

3.6.1. Purpose. The purpose of the System Development and Demonstration phase is to develop a system; reduce integration and manufacturing risk (technical risk reduction occurs during Concept and Technology Development); ensure operational supportability with particular attention to reducing the logistics footprint and providing for human systems integration

(working with the personnel, training, environmental, safety, health, and manpower communities); design for producibility; ensure affordability and the protection of Critical Program Information (CPI); and demonstrate system integration, interoperability, and utility. Discovery and development are aided by the use of simulation-based acquisition and test and evaluation integrated into an efficient continuum and guided by a system acquisition strategy and test and evaluation master plan (TEMP). 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. A Director, Operational Test & Evaluation (DOT&E)-approved live-fire test and evaluation (LFT&E) strategy shall guide LFT&E activity.

System Development and Demonstration has two major efforts: System Integration and System Demonstration. The entrance point is Milestone B, which is also the initiation of an acquisition program. There shall be only one Milestone B per program or evolutionary increment. Each increment of an evolutionary acquisition shall have its own Milestone B. The tables in Tab C identify the statutory and regulatory requirements that must be met at Milestone B. For Shipbuilding Programs, the required program information shall be updated in support of the Milestone B decision, and the ICE shall be completed. Technical maturity assessments will consider the risk associated with critical sub-systems prior to ship installation. Long lead for follow ships may be initially authorized at Milestone B, with final authorization and follow ship approval by the MDA dependent on completion of critical sub-system demonstration and an updated assessment of technical maturity.

3.6.2. Entrance Criteria. Entrance into this phase depends on technology maturity (including software), validated requirements, and funding. Unless some other factor is overriding in its impact, the maturity of the technology shall determine the path to be followed. Programs that enter the acquisition process at Milestone B shall have a system architecture and an operational architecture for their relevant mission area.

3.6.2.1. Before proposing a new acquisition program, DoD Components shall affirmatively answer the following questions:

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

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

3.6.2.1.3. 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?

3.6.2.2. The management and mitigation of technological risk, which allows less costly and less time-consuming systems development, is a crucial part of overall program management and is especially relevant to meeting cost and schedule goals. Objective assessment of technology maturity and risk shall be a continuous aspect of Defense acquisition. Technology developed in S&T or procured from industry or other sources shall have been demonstrated in a relevant environment or, preferably, in an operational environment to be considered mature enough to use for product development in systems integration. Technology maturity

assessments, and where necessary, independent assessments, shall be conducted. If technology is not mature, the DoD Component shall use alternative technology that is mature and that can meet the user's needs.

3.6.2.3. Prior to beginning System Development and Demonstration, users shall identify and the requirements authority shall validate a minimum set of key performance parameters (KPPs), included in the CDD, that shall guide the efforts of this phase. These KPPs may be refined as conditions warrant. Each set of KPPs shall only apply to the current increment of capability in development and demonstration (or, in a single step to full capability, to the entire system). At Milestone B, the PM shall prepare and the MDA shall approve an acquisition strategy that specifies the approach the program will use to achieve the required capability. Each program shall also have an Acquisition Program Baseline establishing program goals--thresholds and objectives--for the minimum number of cost, schedule, and performance parameters that describe the program over its life cycle.

3.6.2.4. The affordability determination is made in the process of addressing cost as a military requirement in the requirements process and included in each CDD, using life-cycle cost or, if available, total ownership cost. Transition into System Development and Demonstration also requires full funding (i.e., inclusion of the dollars and manpower needed for all current and future efforts to carry out the acquisition strategy in the budget and out-year program), which shall be programmed when a system concept and design have been selected, a program manager (PM) has been assigned, requirements have 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 Future Years Defense Program under review, the program shall be fully funded in that Planning, Programming, and Budgeting System 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.

3.6.3. System Integration. This work effort is intended to integrate subsystems and reduce system-level risk. The program shall enter System Integration when the PM has a technical solution for the system, but has not yet integrated the subsystems into a complete system. Validated KPPs shall guide this work effort. This work effort shall typically include the demonstration of prototype articles.

3.6.4. Proceeding Beyond Critical Design Review. The Critical Design Review during System Development and Demonstration provides an opportunity for mid-phase assessment of design maturity as evidenced by such measures as, for example, the number of completed subsystem and system design reviews; the percentage of drawings completed; adequate development testing; a completed failure modes and effects analysis; the identification of key system characteristics and critical manufacturing processes; and the availability of reliability targets and a growth plan; etc. Successful completion of Critical Design Review ends System Integration and continues System Development and Demonstration into the System Demonstration work effort.

3.6.5. System Demonstration. This effort is intended to demonstrate the ability of the system to operate in a useful way consistent with the validated KPPs. The program shall enter System Demonstration when the PM has demonstrated the system in prototypes. This work effort shall end 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. Successful development test and evaluation, early operational assessments, and, where proven capabilities exist, the use of modeling and simulation to demonstrate system integration are critical during this work effort. 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.

3.7. Production and Deployment

3.7.1. Purpose. The purpose of the Production and Deployment phase is to achieve an operational capability that satisfies mission needs. Operational test and evaluation shall determine the effectiveness, suitability, and survivability of the system. The MDA shall make the decision to commit the Department to production at Milestone C. Milestone C authorizes entry into Low-Rate Initial Production (LRIP) (for MDAPs and major systems), into production or procurement (for non-major systems that do not require LRIP) or into limited deployment for MAIS programs or software-intensive systems with no production components. The tables at Tab C identify the statutory and regulatory requirements that must be met at Milestone C.

For MDAPs and other DOT&E Oversight programs, Production and Deployment has two major efforts, LRIP and Full-Rate Production and Deployment, and includes a Full-Rate Production Decision Review.

3.7.2. Entrance Criteria. Entrance into this phase depends on the following criteria: acceptable performance in development, test and evaluation and operational assessment; mature software capability; no significant manufacturing risks; a manufacturing process in control (if Milestone C is full-rate production); an approved Capabilities Production Document (CPD); acceptable interoperability; acceptable operational supportability; compliance with the DoD Strategic Plan; and demonstration that the system is affordable throughout the life cycle, optimally funded, and properly phased for rapid acquisition. If Milestone C approves LRIP, a subsequent review and decision shall authorize full-rate production.

3.7.3. LRIP

3.7.3.1. 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 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.

3.7.3.2. The Department may not conduct operational testing (i.e., operational assessment (OA), combined developmental and operational testing, IOT&E, or FOT&E) of an MDAP until the DOT&E approves, in writing, the adequacy of the plans (including the projected level of funding) for the operational test and evaluation to be conducted in connection with that program (reference (g)). 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.

3.7.3.3. LRIP may be funded by the research, development, test and evaluation (RDT&E) appropriation or by procurement appropriations, depending on the intended

use of the LRIP assets. The DoD Financial Management Regulation provides specific guidance for determining whether LRIP should be budgeted in RDT&E or in procurement appropriations.

3.7.3.4. 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 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.

3.7.3.5. 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 (h)). 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.

3.7.3.6. LRIP is not applicable to automated information systems or software intensive systems with no developmental hardware. However, a limited deployment phase may be applicable. Software shall have proven its maturity level prior to deploying it to the operational environment. Once maturity has been proven, the system or increment is baselined, and a methodical and synchronized deployment plan is implemented for all applicable locations.

3.7.3.7. 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.

3.7.4. Full-Rate Production Criteria. An MDAP may not proceed beyond low-rate initial production without approval of the MDA. The available knowledge to support this approval shall include demonstrated control of the manufacturing process and reliability, the collection of statistical process control data, and the demonstrated control and capability of other critical processes. The decision to continue beyond low-rate to full rate production shall require completion of IOT&E, and the submission of the Beyond LRIP and LFT&E Reports (where applicable) to Congress, to the Secretary of Defense, and to the USD(AT&L).

3.7.5. Full-Rate Production and Deployment. Continuation into full rate production results from a successful Full-Rate Production Decision Review by the MDA (or person designated by the MDA). This work effort delivers the fully funded quantity of systems and supporting materiel and services to the users. During this effort, units shall attain Initial Operational Capability. The tables at Tab C identify the statutory and regulatory requirements associated with this decision.

3.8. Operations and Support

3.8.1. Purpose. 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. Operations and Support has two major efforts: Sustainment and Disposal.

3.8.2. Sustainment

3.8.2.1. Sustainment includes supply, maintenance, transportation, sustaining engineering, data management, configuration management, manpower, personnel, training, habitability, survivability, environmental, safety (including explosives safety), occupational health, protection of CPI, anti-tamper provisions, and information technology (IT), including National Security Systems (NSS), supportability and interoperability functions.

3.8.2.2. Effective sustainment of weapon systems begins with the design and development of reliable and maintainable systems through the continuous application of a robust systems engineering methodology. As a part of this process, the PM shall employ human factors engineering to design systems that require minimal manpower; provide effective training; utilize representative personnel; and are suitable (habitable and safe with minimal environmental and health hazards) and survivable (for both the crew and equipment).

3.8.2.3. The PM shall work with the users to document performance and support requirements in performance agreements specifying objective outcomes, measures, resource commitments, and stakeholder responsibilities. The Military Services shall document sustainment procedures that ensure integrated combat support.

3.8.2.4. The DoD Components shall initiate system modifications, as necessary, to improve performance and reduce ownership costs.

3.8.2.4.1. PMs shall optimize operational readiness through embedded diagnostics and prognostics, serialized item management, automatic identification technology (AIT), and iterative technology refreshment.

3.8.2.4.2. PMs shall ensure that data syntax and semantics for high capacity AIT devices conform to ISO 15434 and ISO 15418.

3.8.2.5. The Services, in conjunction with users, shall conduct continuing reviews of sustainment strategies, utilizing comparisons of performance expectation as defined in performance agreements against actual performance measures. PMs shall revise, correct, and improve sustainment strategies as necessary to meet performance requirements.

3.8.3. Disposal. At the end of its useful life, a system must be demilitarized and disposed in accordance with all legal and regulatory requirements and policy relating to safety(including explosives safety), security, and the environment. During the design process, acquisition program managers shall document hazardous materials used in the system, and plan for demilitarization and disposal.

3.8.4. Sustainment strategies shall evolve and be refined throughout the life cycle, particularly during development of subsequent increments 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.

3.9. OSD Review Procedures

3.9.1. Review of Acquisition Category ID and IAM Programs. USD(AT&L) shall designate programs as ACAT ID, and ASD(C3I) shall designate programs as ACAT IAM, when the program has special interest based on one or more of the following factors: technological complexity; Congressional interest; a large commitment of resources; the program is critical to

achievement of a capability or set of capabilities; or the program is a joint program. Exhibiting one or more of these characteristics, however, shall not automatically imply an ACAT ID or IAM designation.

3.9.2. Defense Acquisition Board (DAB) Review. The DAB shall advise the USD(AT&L) on critical acquisition decisions. The USD(AT&L) shall chair the DAB, and the Vice Chairman of the Joint Chiefs of Staff shall serve as the co-chair. An Acquisition Decision Memorandum (ADM) shall document the decision(s) resulting from the review.

3.9.3. IT Acquisition Board (ITAB) Review. The ITAB shall advise the ASD(C3I)/DoD CIO on critical acquisition decisions. These reviews shall enable the execution of the DoD CIO's acquisition-related responsibilities for IT, including NSS, under the Clinger-Cohen Act (CCA) and Title 10 of United States Code. An ADM shall document the decision(s) resulting from the review.

3.10. Implementation Procedures. MDAs shall establish mandatory procedures for assigned programs. These procedures shall not exceed the requirements for MDAPs and MAIS acquisition programs established in this Attachment or in reference (a). 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 Attachment and reference (a) to a minimum. Waivers or requests for exceptions to the provisions of this Attachment shall be submitted to the USD(AT&L), ASD(C3I), or 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. EFFECTIVE DATE

This Attachment is effective immediately.

Tabs – 9

A. References
B. Acquisition Categories and Milestone Decision Authority
C. Statutory and Regulatory Information and Milestone Procedures
D. IT Considerations
E. Integrated Test and Evaluation
F. Resource Estimate Procedures
G. Human Systems Integration Procedures
H. Acquisition of Services
I. Program Management Procedures

TAB A

REFERENCES, continued

(f) Section 2430 of title 10, United States Code, *Major Defense Acquisition Program Defined*
(g) Section 2399 of title 10, United States Code, *Operational Test and Evaluation of Defense Acquisition Programs*
(h) Section 139 of title 10, United States Code, *Director of Operational Test and Evaluation*
(i) Section 2364 of title 10, United States Code, *Coordination and Communication of Defense Research Activities*
(j) Section 2377 of title 10, United States Code, *Preference for Acquisition of Commercial Items*
(k) Section 2435 of title 10, United States Code, *Baseline Description*
(l) Section 306 of title 5, United States Code, *Strategic Plans* (part of the Government Performance and Results Act)
(m) Section 2432 of title 10, United States Code, *Selected Acquisition Reports*
(n) Section 2433 of title 10, United States Code, *Unit Cost Reports*
(o) Section 2366 of title 10, United States Code, *Major Systems and Munitions Programs: Survivability and Lethality Testing Required Before Full-scale Production*
(p) Section 2440 of title 10, United States Code, *Technology and Industrial Base Plans*
(q) Section 2400 of title 10, United States Code, *Low-rate Initial Production of New Systems*
(r) Section 2434 of title 10, United States Code, *Independent Cost Estimates; Operational Manpower Requirements*
(s) Section 2350a of title 10, United States Code, *Cooperative Research and Development Programs: Allied Countries*
(t) Section 1401 et seq. of title 40, United States Code, *Clinger-Cohen Act of 1996*
(u) House Report 103-357, November 10, 1993
(v) DoD Appropriations Act, 2001 (Pub. L. 106-259), Section 8102 (or successor provision)
(w) Section 811 of the National Defense Authorization Act for Fiscal Year 2001
(x) Section 305 of title 47, United States Code, *Government-Owned Stations*
(y) Section 104 of the National Telecommunications and Information Organization Act, *Spectrum Management Activities*
(z) Sections 901, 902, 903, and 904 of title 47, United States Code
(aa) DoD Directive 4650.1, *Management and Use of the Radio Frequency Spectrum*, June 24, 1987
(aa) Section 4321 et seq. of title 42, United States Code, *National Environmental Policy Act*
(ab) Section 2464 of title 10, United States Code, *Core Logistics Functions*
(ac) Section 2460 of title 10, United States Code, *Definition of Depot-Level Maintenance and Repair*
(ad) Section 2466 of title 10, United States Code, *Limitations on the Performance of Depot-Level Maintenance of Material*

(ae) 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*

(af) DoD Directive 5105.21, *Defense Intelligence Agency (DIA)*, February 18, 1997

(ag) DoD Instruction 4630.8, Procedures for Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS), May 2, 2002

(ah) DoD Directive 4630.5, Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS), January 11, 2002

(ai) DoD Directive 5200.39, *Security, Intelligence, and Counterintelligence Support to Acquisition Program Protection*, September 10, 1997

(aj) Section 1451 of title 40, United States Code, *Applicability to national security systems*

(ak) Executive Order 12114, *Environmental Effects Abroad of Major Federal Actions*, January 4, 1979

(al) DoD Instruction 5200.40, *DoD Information Technology Security Certification and Accreditation Process (DITSCAP)*, December 30, 1997

(am) DoD 5000.4-M, *Cost Analysis Guidance and Procedures*, December 11, 1992

(an) DoD 5000.4-M-1, *Contractor Cost Data Reporting (CCDR) Manual*, April 1999

(ao) DoD Instruction 4000.19, *Inter-Service and Intra-Governmental Support*, August 9, 1995

(ap) DoD Directive 1430.13, *Training Simulators and Devices*, August 22, 1986

(aq) Section 801(d) of the National Defense Authorization Act for Fiscal Year 2002

(ar) DoD Directive 5015.2, *DoD Records Management Program*, March 6, 2000

(as) Section 3101 et seq. of title 44, United States Code, *Records Management by Federal Agencies*

(at) DoD Directive 5530.3, *International Agreements*, June 11, 1987

(au) Section 2341 of title 10, United States Code, *Authority to acquire logistic support, supplies, and services for elements of the armed forces deployed outside the United States*

(av) Section 2342 of title 10, United States Code, *Cross-servicing agreements*

TAB B

ACQUISITION CATEGORIES (ACATs) AND MDA

A technology project or acquisition program shall be categorized based on its location in the acquisition process, dollar value, and complexity.

B1. 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. The USD(AT&L) shall be the MDA for those projects that, if successful, will likely result in an MDAP. The ASD(C3I)/DoD CIO shall be the MDA for those projects that, if successful, will result in a MAIS.

B2. Table A1 contains the description and decision authority for ACAT I through III programs.

Acquisition Category	Reason for ACAT Designation	Decision Authority
ACAT I	• MDAP (10 USC 2430, reference (f))) o Dollar value: 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 o Special interest • MDA designation	ACAT ID: USD(AT&L) ACAT IC: Head of the DoD Component or, if delegated, the DoD Component Acquisition Executive (CAE)
ACAT IA	• MAIS: 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 • MDA designation	ACAT IAM: ASD(C3I)/DoD CIO ACAT IAC: ASD(C3I)/DoD CIO-delegated to CAE or DoD Component CIO
ACAT II	• Do not meet criteria for ACAT I • Major system: 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 (10 USC 2302d) • MDA designation	DoD CAE or the individual designated by the CAE
ACAT III	• Do not meet criteria for ACAT II or above • Less-than a MAIS program	Designated by the DoD CAE at the lowest level appropriate

Notes:
1. In some cases, an ACAT IA program, as defined above, also meets the definition of an MDAP. The USD(AT&L) and the ASD(C3I)/DoD 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.
2. An Automated Information System (AIS) program is an acquisition program that acquires IT, except IT that involves equipment that is an integral part of a weapon or weapons system, or is an acquisition of services program. Because of the dollar values of MAIS programs, no AIS programs are ACAT II.
3. The ASD(C3I)/DoD CIO shall designate programs as ACAT IAM or ACAT IAC.

Table A1.

B3. The DoD Component shall notify the USD(AT&L) or ASD(C3I)/DoD CIO 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 shall 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 shall occur upon designation of the USD(AT&L) or the ASD(C3I)/DoD CIO.

B3.1. 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 shall become effective upon approval of the request by the USD(AT&L) or ASD(C3I)/DoD CIO.

B3.2. The USD(AT&L) or ASD(C3I)/DoD CIO may reclassify an acquisition program as ACAT ID or IAM at any time.

TAB C

STATUTORY, REGULATORY, AND CONTRACT REPORTING INFORMATION AND MILESTONE PROCEDURES

C1. Tables 1, 2, and 3, below, show the information requirements for all milestones and phases, both statutory and regulatory, to include contract reporting. A non-mandatory guidebook will support this Attachment to provide best practices, lessons learned, and expectations for the information required by these tables. The Defense Acquisition Deskbook contains a library of mandatory policy and regulations and discretionary practices and advice. The Deskbook is at www.dau.mil.

C2. For AIS programs, the information in this table, except for CCA compliance, is regulatory, not statutory, unless otherwise stated, or the AIS is an MDAP. The Acquisition Program Baseline and the Industrial Capabilities required for MDAPs result from the cited statute; for non-MDAPs, they are required by these tables.

C.T1. Table 1. Statutory Information Requirements

INFORMATION REQUIRED	APPLICABLE STATUTE	WHEN REQUIRED
Consideration of Technology Issues	10 U.S.C. 2364, reference (g)	Milestone (MS) A MS B MS C
Market Research	10 U.S.C. 2377, reference (j)	Technology Opportunities User Needs MS A MS B
Acquisition Program Baseline (APB)	10 U.S.C. 2435, reference (k)	Program Initiation for Ships MS B MS C (updated, as necessary) Full-Rate Production DR
Program Deviation Report	10 U.S.C. 2435, reference (k)	Immediately upon a program deviation
Compliance with Strategic Plan (as part of the analysis of alternatives, whenever practical)	5 U.S.C. 306, reference (l)	MS B MS C
Selected Acquisition Report (SAR)—DD-AT&L(Q&A)823 (MDAPs only)	10 U.S.C. 2432, reference (m)	Program Initiation for Ships MS B and annually thereafter End of quarter following MS C Full-Rate Production DR Breach
Unit Cost Report (UCR)—DD-AT&L(Q&R)1591 (MDAPs only)	10 U.S.C. 2433, reference (n)	Quarterly
Live Fire Waiver & alternate LFT&E Plan (Covered Systems only)	10 U.S.C. 2366, reference (o)	MS B
Industrial Capabilities (part of acquisition strategy) (N/A for AISs)	10 U.S.C. 2440, reference (p)	MS B MS C
LRIP Quantities (N/A for AISs)	10 U.S.C. 2400, reference (q)	MS B

Independent Cost Estimate (CAIG) and Manpower Estimate (reviewed by OUSD(P&R)) (N/A for AISs) (MDAPs Only)	10 U.S.C. 2434, reference (r)	Program Initiation for Ships (cost assessment only) MS B MS C Full-Rate Production DR
Operational Test Plan (DOT&E Oversight Programs only)	10 U.S.C. 2399, reference (g)	Prior to start of operational test and evaluation
Cooperative Opportunities (part of acquisition strategy)	10 U.S.C. 2350a, reference (s)	MS B MS C
Post-Deployment Performance Review	5 U.S.C. 306, reference (l) 40 U.S.C. 1401 et seq., reference (t)	Full-Rate Production DR
Beyond-LRIP Report (OSD OT&E Oversight programs only)	10 U.S.C. 2399, reference (g)	Full-Rate Production DR
LFT&E Report, RCS DD-OT&E(AR)1845 (LFT&E-covered programs only)	10 U.S.C. 2366, reference (o)	Full-Rate Production DR
Electronic Warfare (EW) T&E Report, Report Control Symbol (RCS) DD-AT&L(A)2137 (EW programs on OSD T&E Oversight List)	HR 103-357 (1993), reference (u)	Annually
CCA Compliance (All IT–including NSS) (See Tab C, Table 2)	40 U.S.C. 1401 et seq., reference (t)	Program Initiation for Ships MS B MS C Full-Rate Production DR
Registration of mission-critical and mission-essential information systems, RCS DD-C3I(AR)2096	Pub.L. 106-259, Section 8102, reference (v) (or successor appropriations act provision) Pub.L. 106-398, Section 811, reference (w)	Program Initiation for Ships MS B (if Program Initiation) MS C (if Program Initiation)
Spectrum Certification Compliance (DD Form 1494) (applicable to all systems/equipment that require utilization of the electromagnetic spectrum)	47 U.S.C. 305, reference (x) Pub. L. 102-538, 104, reference (y) 47 U.S.C. 901-904, reference (z) OMB Circular A-11, Part 2, reference (b) DoD Directive 4650.1, reference (aa)	MS B MS C (if no MS B)
Programmatic Environmental Safety and Health Evaluation (Including National Environmental Policy Act Schedule)	42 U.S.C. 4321, reference (aa)	Program Initiation for Ships 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 (ab) 10 U.S.C. 2460, reference (ac) 10 U.S.C. 2466, reference (ad)	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 (ae)	MS B MS C (if no MS B)

C.T2. Table 2. Regulatory Information Requirements

INFORMATION REQUIRED	SOURCE	WHEN REQUIRED
Validated ICD – Validated CDD – Validated CPD –	CJCSI 3170.01, reference (e)	Program Initiation for Ships MS A MS B MS C
Acquisition Strategy	This Memorandum	Program Initiation for Ships MS B MS C Full-Rate Production DR
Analysis of Multiple Concepts	This Memorandum	MS A

Analysis of Alternatives (AoA)	This Memorandum	MS B MS C (if no MS B)
System Threat Assessment (AIS programs use published Capstone Information Operations System Threat Assessment) (validated by DIA for ACAT ID programs)	DoDD 5105.21, reference (af)	MS B MS C
Technology Readiness Assessment	This Memorandum	Program Initiation for Ships (preliminary assessment) MS B MS C
Independent Technology Assessment (ACAT ID only) (if required by DUSD(S&T))	This Memorandum	MS B MS C
C4ISP (also summarized in the acquisition strategy)	DoDD 4630.5 DoDI 4630.8, references (ah) and (ag)	Program Initiation for Ships MS B MS C
C4I Supportability Certification	This Memorandum	Full-Rate Production DR
Interoperability Certification	This Memorandum	Full-Rate Production DR
Affordability Assessment	This Memorandum	MS B MS C
Economic Analysis (MAISs only)	This Memorandum	MS B
Component Cost Analysis (mandatory for MAIS; as requested by CAE for MDAP)	This Memorandum	Program Initiation for Ships 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)	This Memorandum	Program Initiation for Ships MS B MS C Full-Rate Production DR
Test and Evaluation Master Plan (TEMP)	This Memorandum	MS A (evaluation strategy only) (w/in 180 days after MS A approval) MS B MS C (update, if necessary) Full-Rate Production DR
Operational Test Activity Report of Operational Test and Evaluation Results	This Memorandum	MS B MS C Full-Rate Production DR
Component Live Fire Test and Evaluation Report (Covered Systems Only)	This Memorandum	Completion of Live Fire Test and Evaluation
Program Protection Plan (PPP) (for programs with critical program information) (also summarized in the acquisition strategy)	DoDD 5200.39, reference (ai)	MS B (based on validated requirements in CPD) MS C
Exit Criteria	This Memorandum	Program Initiation for Ships MS A MS B MS C Each Review
Defense Acquisition Executive Summary (DAES), DD-AT&L(Q)1429	This Memorandum	Quarterly Upon POM or BES submission Upon unit cost breach
ADM	This Memorandum	Program Initiation for Ships MS A MS B MS C Each Review

C.T3. Table 3. Contract Reporting Requirements

REQUIRED REPORT		WHEN REQUIRED
Contractor Cost Data Report (CCDR)	This Memorandum	• All major contracts and subcontracts, regardless of contract type, for ACAT I programs valued at more than $50 million (FY 2002 constant dollars) • Not required for contracts priced below $7 million (FY 2002 constant dollars) • The CCDR requirement on high-risk or high-technical-interest contracts priced between $7 and $50 million is left to the discretion of the Cost Working Integrated Product Team (IPT) • Not required for procurement of commercial systems, or for non-commercial systems bought under competitively awarded, firm fixed-price contracts, as long as competitive conditions continue to exist
Earned Value Management Systems (EVMS)	OMB Circular A-11, Part 7, reference (b)	Implement EVMS guidelines in ANSI/EIA-748-1998 and conduct Integrated Baseline Reviews
Software Resources Data Report (SRDR)	This Memorandum	All major contracts and subcontracts, regardless of contract type, for contractors developing/producing software elements within ACAT IA, ACAT IC and ACAT ID programs for any element with a projected effort greater than $25M (FY 2002 constant dollars).

TAB D

IT CONSIDERATIONS

D1. Mission Critical/Mission Essential IT Requirements. Table 1 depicts Mission Critical/Mission Essential IT Requirements.

D1.1. 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 Combatant Commander, or their designee.) A "Mission-Critical Information *Technology* System" has the same meaning as a "Mission-Critical Information System."

D1.2. 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 Combatant Commander, or their designee.) A "Mission-Essential Information *Technology* System" has the same meaning as a "Mission-Essential Information System."

D.T1. Table 1. Mission Critical/Mission Essential IT Requirements

	Mission Critical (MC) or Mission Essential (ME)					Non-MC or ME		
Mission-Critical and Mission-Essential Information Systems	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
Confirm CCA Compliance to MDA	Yes	Yes	Yes	Yes	Yes	No	No	No
Certify CCA Compliance to DOD CIO	No	No	No	Yes	No	No	No	No
Register System with DOD CIO	Yes	Yes	Yes	Yes	Yes	No	No	No
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

D2. IT System Procedures

D2.1. 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 CCA. At a minimum, the Component CIO's confirmation shall include a written description of the three materiel questions of 3.6.2.1 and the considerations in Table 2, below.

D2.2. PMs shall prepare a table such as the one illustrated at Table 2 to indicate which acquisition documents correspond to the CCA requirements. DoD Component CIOs shall use the acquisition documents identified in the table to assess CCA compliance. The requirements for submission of written confirmation shall be satisfied by the DoD Component CIO's concurrence with the PM's CCA Compliance Table. Issues related to compliance will be resolved via the Integrated Product Team process.

D2.3. For MDAP and MAIS programs, the Component CIO's confirmation shall be provided to both the DoD CIO and the MDA.

D2.4. DoD Components shall not award a contract for the acquisition of a mission-critical or mission essential IT system, at any level, until (1) the Component registers the system with the DoD CIO, (2) the DoD CIO determines the system has an appropriate information assurance strategy, and (3) the Component CIO confirms that the system is being developed in accordance with the CCA by complying with paragraph D2.1 (above).

D2.5. The requirement to confirm CCA compliance applies to milestone decisions for each increment of an evolutionary acquisition. The requirements of the CCA apply to all IT (including NSS) acquisitions, but section D2.4 above applies only to mission-critical and mission-essential IT systems.

D2.6. Prior to Milestone C, for MAIS, the MDA shall approve, in coordination with DOT&E, the quantity and location of sites for a limited deployment for IOT&E.

D2.7. When use of commercial IT is considered viable, maximum leverage of and coordination with the DoD Enterprise Software Initiative shall be made.

D.T2. Table 2. CCA Compliance Table

Requirements Related to the Clinger-Cohen Act (CCA) of 1996	Applicable Program Documentation **
***Make a determination that the acquisition supports core, priority functions of the Department	ICD Approval
***Establish outcome-based performance measures linked to strategic goals	ICD, CDD, CPD and APB approval
***Redesign the processes that the system supports to reduce costs, improve effectiveness and maximize the use of COTS technology	Approval of the ICD, Concept of Operations, AoA, CDD, and CPD
* No Private Sector or government source can better support the function	Acquisition Strategy page XX, para XX AOA page XX
* An analysis of alternatives has been conducted	AOA
* 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	Program LCCE Program Economic Analysis for MAIS
There are clearly established measures and accountability for program progress	Acquisition Strategy page XX APB
The acquisition is consistent with the Global Information Grid policies and architecture, to include relevant standards	APB (Interoperability KPP) C4ISP (IERS)
The program has an information assurance strategy that is consistent with DoD policies, standards and architectures, to include relevant standards	Information Assurance Strategy
To the maximum extent practicable, (1) modular contracting has been used, and (2) the program is being implemented in phased, successive increments, each of which meets part of the mission need and delivers measurable benefit, independent of future increments	Acquisition Strategy page XX
The system being acquired is registered	Registration Data Base

* For weapons systems and command and control systems, these requirements apply to the extent practicable (40 U.S.C. 1451, reference (aj))

** The system documents/information cited are examples of the most likely but not the only references for the required information. If other references are more appropriate, they may be used in addition to or instead of those cited.

***These requirements are presumed to be satisfied for Weapons Systems with embedded IT and for Command and Control Systems that are not themselves IT systems

TAB E

INTEGRATED TEST AND EVALUATION

E1. The PM, in concert with the user and test communities, shall coordinate developmental test and evaluation (DT&E), operational test and evaluation (OT&E), LFT&E, family-of-systems interoperability testing, and modeling and simulation (M&S) activities, into an efficient continuum, closely integrated with requirements definition and systems design and development. The T&E strategy shall provide information about risk and risk mitigation, provide empirical data to validate models and simulations, evaluate technical performance and system maturity, and determine whether systems are operationally effective, suitable, and survivable against the threat detailed in the System Threat Assessment. The T&E strategy shall also address development and assessment of the weapons support test systems during the System Development and Demonstration Phase, and into production, to ensure satisfactory test system measurement performance, calibration traceability and support, required diagnostics, safety, and correct test requirements implementation. Adequate time and resources shall be planned to support pre-test predictions and post-test reconciliation of models and test results, for all major test events.

E2. The PM shall design DT&E objectives appropriate to each phase and milestone of an acquisition program. The OTA shall design OT&E objectives appropriate to each phase and milestone of a program, and submit them to the PM for inclusion in the Test and Evaluation Master Plan (TEMP). Completed IOT&E and completed LFT&E shall support a beyond LRIP decision for ACAT I and II programs for conventional weapons systems designed for use in combat. For this purpose, OT&E shall require more than an OA based exclusively on computer modeling, simulation, or an analysis of system requirements, engineering proposals, design specifications, or any other information contained in program documents (10 U.S.C. 2399 and 10 U.S.C. 2366, references (g) and (o)).

E3. T&E on commercial and non-developmental items shall ensure the operational effectiveness, suitability, and, as appropriate, survivability, of these items for the military application in the military environment, regardless of the manner of procurement.

E4. Evaluation Strategy

E4.1. Projects that undergo a Milestone A decision shall have an evaluation strategy that shall primarily address M&S, including identifying and managing the associated risk, and early T&E strategy to evaluate system concepts against mission requirements. Pre-Milestone A projects shall rely on the ICD as the basis for the evaluation strategy.

E4.2. The T&E strategy for a program using an evolutionary acquisition strategy shall remain consistent with the time-phased requirements in the CDD/CPD.

E5. T&E Planning

E5.1. TEMP. The PM shall submit a TEMP to Deputy Director, Developmental Test and Evaluation, for approval by DOT&E and Director, Defense Systems, prior to Milestones B and C and the Full-Rate Production decision.

E5.2. Planning shall provide for completed DT&E, OT&E, and LFT&E, as required, before entering full-rate production.

E5.3. Test planning for commercial and non-developmental items shall recognize commercial testing and experience, but nonetheless determine the appropriate DT&E, OT&E, and LFT&E needed to assure effective performance in the intended operational environment.

E5.4. Test planning and conduct shall take full advantage of existing investment in DoD ranges, facilities, and other resources, including the use of embedded instrumentation.

E5.5. Planning shall consider the potential testing impacts on the environment (42 U.S.C. 4321-4370d and E.O. 12114, references (aa) and (ak)).

E5.6. The concept of early and integrated T&E shall emphasize prototype testing during system development and demonstration and early OAs to identify technology risks and provide operational user impacts.

E5.7. Appropriate use of accredited models and simulation shall support DT&E, OT&E, and LFT&E.

E5.8. DOT&E and the Deputy Director, DT&E, Office of Strategic and Tactical Systems, Office of the USD(AT&L) shall have full and timely access to all available developmental, operational, and live fire T&E information.

E5.9. Interoperability Testing. All DoD MDAPs, programs on the OSD T&E Oversight list, post-acquisition (legacy) systems, and all programs and systems that must interoperate with them, are subject to interoperability evaluations throughout their life cycles to validate their ability to support mission accomplishment. For IT systems, including NSS, with interoperability requirements, the Joint Interoperability Test Center (JITC) shall provide system interoperability test certification memoranda to the Director, Joint Staff J-6, throughout the system life-cycle and regardless of acquisition category.

E6. Developmental Test and Evaluation (DT&E). DT&E shall:

E6.1. Identify the technological capabilities and limitations of the alternative concepts and design options under consideration;

E6.2. Identify and describe design technical risks.

E6.3. Stress the system under test to at least the limits of the Operational Mode Summary/Mission Profile, and for some systems, beyond the normal operating limits to ensure the robustness of the design.

E6.4. Assess technical progress and maturity against critical technical parameters, to include interoperability, documented in the TEMP;

E6.5. Provide data and analytic support to the decision process to certify the system ready for OT&E;

E6.6. In the case of IT systems, including NSS, support the DoD Information Technology Security Certification and Accreditation Process and Joint Interoperability Certification process; and,

E6.7. Prior to full rate production, demonstrate the maturity of the production process through Production Qualification Testing of LRIP assets.

E7. Service Certification of System Readiness for Operational Test and Evaluation (OT&E)

E7.1. The Service Acquisition Executives (SAE) shall establish and issue a process directing steps to be taken to certify a system's readiness for operational testing.

E7.2. An Operational Test Readiness Review (OTRR) shall be conducted prior to IOT&E. The OTRR shall include a review of DT&E results, conclusions, recommendations, and an assessment of the program's ability to meet the program's operational requirements, including interoperability, as specified in its CPD or similar document. For ACAT I programs, the SAE shall chair this review and certify the system's readiness for IOT&E. For all other programs, this responsibility may only be delegated to the PEO.

E7.3. The SAE shall ensure that OT&E entrance criteria, to be used to determine OT&E readiness certification in support of each planned operational test, are developed and documented in the TEMP.

E7.4. A mission impact analysis of unmet criteria and thresholds must be sent to the MDA prior to the operational test readiness review.

E7.5. Additionally, the procedures will include an analysis of all identified program development risks to verify their resolution has been demonstrated in developmental testing.

E7.6. The supporting evaluation of system maturity using these OT&E entrance criteria, plus the mission impact analysis of any shortcomings, shall be contained in a formal DT&E report prepared by the program, which shall be submitted to the operational test readiness review system certification authority, DD,DT&E/S&TS, and DOT&E 60 days prior to the operational test.

E7.7. In addition, a Service assessment, independent of the developer, shall be conducted of completed testing for the system. This independent assessment (written or briefing format) shall also be presented at the operational test readiness review and provided to DD, DT&E in advance.

E7.8. The DD, DT&E shall be invited to all operational test readiness reviews of programs on the OSD T&E Oversight List.

E7.9. For ACAT ID/IAM programs, there shall be an Overarching Integrated Product Team (OIPT) review prior to commencing the IOT&E. At the OIPT review, the DD,DT&E will provide an independent assessment of system readiness.

E8. Operational Test and Evaluation (OT&E)

E8.1. OT&E shall determine the operational effectiveness, suitability, and survivability of a system under realistic operational conditions, including combat; determine if the thresholds in the approved CPD and the critical operational issues have been satisfied; and assess impacts to combat operations.

E8.2. The Lead Executive Component shall brief DOT&E on concepts for an OT&E 120 days prior to start. They shall submit the OT&E plan 60 days prior, and shall report major revisions as they occur.

E8.3. Information assurance testing shall be conducted on information systems.

E8.4. Typical users shall operate and maintain the system or item under conditions simulating combat stress and peacetime conditions.

E8.5. The independent OTAs shall use production or production representative articles for the dedicated phase of OT&E that supports the full-rate production decision (or for ACAT IA or other acquisition programs, the deployment decision).

E8.6. The OTA shall test and evaluate all hardware and software alterations that materially change system performance including system upgrades and changes to correct deficiencies identified during T&E.

E8.7. OTAs shall conduct an independent, dedicated phase of OT&E before full-rate production to evaluate operational effectiveness, suitability, and survivability, as required by reference (g) for all programs.

E8.8. All weapon, Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR), and information programs that are dependent on external information sources, or that provide information to other DoD systems, shall be assessed for information assurance.

E8.9. DOT&E shall determine the quantity of articles procured for OT&E for MDAPs; the cognizant OTA shall make this decision for non-MDAPs (reference (g)).

E8.10. DOT&E shall assess the adequacy of OT&E and LFT&E, and evaluate the operational effectiveness, suitability, and survivability, as applicable, of systems under DOT&E oversight. DOT&E-oversight programs beyond LRIP, shall require continued DOT&E test plan approval, monitoring, and Follow-On Operational Test and Evaluation (FOT&E) reporting to complete IOT&E activity; to refine IOT&E estimates; to verify correction of deficiencies; to evaluate significant changes to system design or employment; and to evaluate whether or not the system continues to meet operational needs and retain operational effectiveness in a substantially new environment, as appropriate.

E8.11. Use of Contractors in Support of OT&E

8.11.1. Per reference (g), persons employed by the contractor for the system being developed may only participate in OT&E of major defense acquisition programs to the extent that is planned for them to be involved in the operation, maintenance, and other support of the system when deployed in combat.

8.11.2. A contractor that has participated (or is participating) in the development, production, or testing of a system for a DoD Component (or for another contractor of the Department of Defense) may not be involved in any way in establishing criteria for data collection, performance assessment, or evaluation activities for OT&E. DOT&E may waive such limitation if DOT&E determines, in writing, that sufficient steps have been taken to ensure the impartiality of the contractor in providing the services. These limitations do not apply to a contractor that has participated in such development, production, or testing, solely in test or test support on behalf of the Department of Defense.

E9. OSD T&E Oversight List. DOT&E and Director, Strategic and Tactical Systems (D, S&TS) shall jointly, and in consultation with the T&E executives of the cognizant DoD Components, determine the programs designated for OSD T&E oversight. The DoD memorandum entitled "Designation of Programs for OSD Test and Evaluation (T&E) Oversight" identifies these programs.

E10. Live Fire Test and Evaluation (LFT&E)[1]. Reference (o) mandates LFT&E and formal LFT&E reporting for all covered systems. The DOT&E shall approve the LFT&E strategy for covered systems prior to Milestone B.

E11. Modeling and Simulation (M&S). The PM shall plan for M&S throughout the acquisition life cycle. The PM shall identify and fund required M&S resources early in the life cycle

E12. Foreign Comparative Testing (FCT). 10 U.S.C. 2350a(g), reference (s) prescribes funding for U.S. T&E of selected allied and friendly foreign countries' equipment and technologies when such items and technologies have potential to satisfy valid DoD requirements. USD(AT&L) shall centrally manage FCT and notify the Speaker of the House, the President of the Senate, the House Armed Services Committee, the Senate Armed Services Committee, and the Appropriations Committees of the Senate and the House of Representatives at least 30 days prior to committing funds to start a new FCT evaluation (reference (s)).

E13. Testing Increments of an Evolutionary Acquisition Program. The structure of these test activities depends on the program acquisition strategy. In general, all increment testing programs shall:

E13.1. Provide for early involvement of the Service OTA/JITC in DT&E and test planning;

E13.2. Conduct adequate DT&E, LFT&E, and OT&E of each new incremental capability;

E13.3. Integrate successive periods of DT&E, LFT&E and OT&E;

E13.4. Tailor test content and reporting against earlier test results, evaluating at a minimum the increment of mission accomplishment and survivability required of the new increment plus whether or not performance previously demonstrated by the previous increment has been degraded;

E13.5. Support each acquisition decision point with adequate test and evaluation of operational effectiveness, suitability, and survivability;

E13.6. Perform an independent assessment by the OTA prior to release of each successive increment to the user;

E13.7. For programs under OT&E and/or LFT&E oversight, support DOT&E's intended schedule for reporting to the Secretary of Defense and Congressional defense committees, whether through phased submittal of dedicated reports or through DOT&E annual reports to the Congress.

[1] Not applicable to ACAT IA programs.

TAB F

RESOURCE ESTIMATE PROCEDURES

F1. Cost Analysis Improvement Group (CAIG) Independent Life-Cycle Cost Estimates (LCCEs). The OSD Cost Analysis Improvement Group (CAIG) shall prepare independent LCCEs per 10 U.S.C. 2434 (reference (r)). The CAIG shall provide an independent LCCE at major decision points, as specified in statute, and, otherwise, at the direction of the MDA, to the MDA. The MDA shall consider the independent LCCE before approving entry into System Development and Demonstration or into Production and Deployment. The CAIG shall also prepare an independent cost estimate (ICE) for ACAT IC programs at the request of USD(AT&L) or ASD(C3I).

F2. Cost Analysis Requirements Description (CARD). For ACAT I programs, the PM shall prepare, and an authority no lower than the DoD Component PEO, shall approve the CARD. DoD 5000.4-M, reference (al), specifies CARD content. For joint programs, the CARD shall cover the common program as agreed to by all participating DoD Components, as well as any unique DoD Component requirements. The teams preparing the program office LCCE, the component cost analysis, if applicable, and the independent LCCE shall receive a draft CARD 180 days, and the final CARD 45 days, prior to a planned OIPT or DoD Component review, unless the OIPT leader agrees to other due dates.

F3. CCDR System. The CCDR system is the primary DoD means of collecting data on the costs and resource usage that DoD contractors incur in performing DoD programs. The Chair, CAIG, shall prescribe a format for the CCDR and the SRDR, and establish reporting system policies in DoD 5000.4.M-1, reference (an). The Chair shall monitor the implementation of policy to ensure consistent and appropriate application throughout the Department of Defense. The Chair may waive the information requirements of Table T3 of Tab C.

F4. Cost Analysis Improvement Group (CAIG) Procedures. The DoD Component responsible for acquisition of a system shall cooperate with the CAIG and provide the cost, programmatic, and technical information required for estimating costs and appraising cost risks. The DoD Component shall also facilitate CAIG staff visits to the program office, product centers, test centers, and system contractor(s). The process through which the ICE is prepared shall be consistent with the following policies (reference (an)):

F4.1. CAIG shall participate in IPT meetings (Cost Working IPTs/Integrating IPTs/OIPTs);

F4.2. CAIG, DoD Components, and PM shall share data, models and use the same CARD;

F4.3. CAIG, DoD Components, and PM shall strive to raise and resolve in a timely manner and at the lowest possible levels issues;

F4.4. CAIG shall brief preliminary independent LCCE to the PM 45 days before and the final estimate 21 days before the OIPT;

F4.5. CAIG, DoD Component and PM shall address differences between independent LCCE and the PM/Service estimate;

F4.6. PM shall identify to Chair, CAIG, in a timely manner issues projected to be brought to the OIPT.

F5. Analysis of Alternatives Procedures. For ACAT I and IA programs, the Director, Program Analysis & Evaluation (D,PA&E) shall direct development of the analysis of alternatives by preparing initial guidance, reviewing the analysis plan, and reviewing the final analysis products. The guidance will be issued to the DoD component, or for ACAT 1A programs, the office of the PSA responsible for the mission area. This office will designate responsibility for completion of the AoA, but it may not be assigned to the Program Manager. An analysis plan will be provided to the office D,PA&E for review prior to the start of the AoA and the final AoA will be provided to the D,PA&E not later than 60 days prior to the Defense Acquisition Board meeting for Milestone Review. The D,PA&E will evaluate the AoA and provide an assessment to the Head of the DoD Component or Principle Staff Assistant (PSA) and to the MDA. In this evaluation, D,PA&E will assess the extent to which the AoA:

- illuminated capability advantages and disadvantages,
- considered joint operational plans,
- examined sufficient feasible alternatives,
- discussed key assumptions and variables and sensitivity to changes in these,
- assessed technical risk and maturity, and
- calculated costs.

TAB G

HUMAN SYSTEMS INTEGRATION (HSI) PROCEDURES

G1. General. The PM shall have a comprehensive strategy for HSI in place early in the acquisition process to minimize ownership costs and improve performance by ensuring that the system is built to accommodate the human performance characteristics of the user population that will operate, maintain, and support the system.

G2. Human Factors Engineering. The PM shall take steps (e.g., contract deliverables or Government/contractor IPT teams) to ensure human factors engineering/cognitive engineering is employed during systems engineering for the life of the project to provide for effective human-machine interfaces and to meet HSI requirements. Where practicable and cost effective, system designs shall minimize or eliminate system characteristics that require excessive cognitive, physical, or sensory skills; entail extensive training or workload-intensive tasks; result in mission-critical errors; or produce safety or health hazards.

G3. Personnel. The PM shall work with the personnel community to define the human performance characteristics of the user population based on the system description, projected characteristics of target occupational specialties, and recruitment and retention trends. To the extent possible, systems shall not require special cognitive, physical, or sensory skills beyond that found in the specified user population. For those programs that require skill requirements that exceed the knowledge, skills, and abilities of current military occupational specialties or that require additional skill indicators or hard-to-fill military occupational specialties, the PM shall consult with personnel communities to identify readiness, PERSTEMPO, and funding issues that impact program execution.

G4. Habitability. The PM shall work with habitability representatives to establish requirements for the physical environment (e.g., adequate space and temperature control) and, if appropriate, requirements for personnel services (e.g., medical and mess) and living conditions (e.g., berthing and personal hygiene) for conditions that have a direct impact on meeting or sustaining system performance or that have such an adverse impact on quality of life and morale that recruitment or retention is degraded.

G5. Manpower. In advance of contracting for operational support services, the PM shall work with the manpower community to determine the most efficient and cost-effective mix of DoD manpower and contract support. As a part of this process, the PM shall consider use of inter-Service and intra-Governmental support (DoD Instruction 4000.19, reference (ao)).

G6. Training. The PM shall work with the training community to develop options for individual, collective, and joint training for operators, maintainers and support personnel and, where appropriate, base training decisions on training effectiveness evaluations. The PM shall address major elements of the training system described in DoD Directive 1430.13, reference (ap), and place special emphasis on options that enhance user capabilities, maintain skill proficiencies, and reduce individual and collective training costs. The PM shall develop training system plans to maximize use of new learning techniques, simulation technology, embedded training, and instrumentation systems that provide anytime, anyplace training and reduce the demand on the training establishment. Where possible, the PM shall maximize use of simulation-supported

embedded training and the training systems shall fully support and mirror the interoperability of the operational system. For training programs that require training infrastructure modifications, the PM shall identify technical, schedule, and funding issues that impact program execution.

G7. Environment, Safety and Health (ESH). As part of risk reduction, the PM shall prevent ESH hazards, where possible, and shall manage ESH hazards where they cannot be avoided. The support strategy shall incorporate a Programmatic ESH Evaluation (PESHE), including ESH risks, a strategy for integrating ESH considerations into the systems engineering process, identification of ESH responsibilities, a method for tracking progress, and a compliance schedule for National Environmental Policy Act (NEPA) (42 U.S.C. 4321-4370d and Executive Order 12114, references (aa) and (ak)). During system design, the PM shall document hazardous materials used in the system and plan for their demilitarization and disposal.

G8. Survivability. For systems with missions that might expose it to combat threats, the PM shall address personnel survivability issues including protection against fratricide, detection, and instantaneous, cumulative, and residual nuclear, biological, and chemical effects; the integrity of the crew compartment; and provisions for rapid egress when the system is severely damaged or destroyed. The PM shall address special equipment or gear needed to sustain crew operations in the operational environment.

TAB H

ACQUISITION OF SERVICES

Section 801 of the National Defense Authorization Act for Fiscal Year 2002, Pub. L. 107-107, reference (aq), required establishment of a management structure for the procurement of services by the Department of Defense. This management structure requires that the acquisition of services shall be based on clear, performance-based requirements, and require identified and measurable outcomes properly planned and administered to achieve the intended results. The following guidance shall apply:

H1. Outcomes

H1.1. All service acquisitions shall utilize a strategic approach to include:

H1.1.1. Development of a picture of what the DoD is spending on services;
H1.1.2. An enterprise-wide approach to procuring services; and
H1.1.3. Development of new ways of doing business.

H1.2. All service acquisitions shall be acquired by business arrangements that are in the best interests of the DoD and are entered into or issued and managed in compliance with applicable statutes, regulations, directives, and other requirements, regardless of whether the services are acquired by the DoD or by an official of the United States outside the DoD. PMs shall coordinate with the DoD Component manpower authority in advance of contracting for operational support services to ensure that tasks and duties that are designated as inherently governmental or exempt are not contracted.

H2. Decision Authorities shall establish mandatory procedures for assigned service acquisitions.

H3. Each DoD Component shall establish a management review process that provides for consistent review and approval of service acquisitions.

H4. Each acquisition of services shall have:

H4.1. A documented acquisition strategy, updated when changes occur;
H4.2. Metrics for cost, schedule and performance;
H4.3. An approved data system for the collection and reporting of required data.

H5. The Decision Authority shall conduct execution reviews to assess progress against the metrics.

H6. Management of the acquisition of services is the responsibility of the USD(AT&L), ASD(C3I) for information technology, the CAE, the Head of Contracting Activity (HCA) (for those Components without a CAE), or such designated officials in each Service/Agency as identified by the CAE or HCA (for those Components without a CAE). Each of these designated officials can be a Decision Authority, and have the authority to exercise approval over the service acquisition, provided the designated official is independent of the official developing and executing the service acquisition strategy.

H7. The acquisition of services may require the execution of multiple contracts or other instruments for committing or obligating funds (e.g. funds transfers; placing orders under existing contracts), therefore, the management level shall be determined using the total planned dollar value (including options, contingencies, funds transfers, provisioning, etc) of the acquisition.

H8. Additional guidance regarding USD(AT&L) and OSD reviews appears in the Guidebook.

TAB I

PROGRAM MANAGEMENT PROCEDURES

I1. 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). 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.

I2. Assignment of Program Executive Responsibility. Unless a waiver is granted for a particular program by the USD(AT&L) or the ASD(C3I)/DoD CIO, 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)/DoD CIO 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 increment 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.

I3. Life-Cycle Management of Information. PMs shall comply with record keeping responsibilities under the Federal Records Act for the information collected and retained in the form of electronic records. (See DoD Directive 5015.2, reference (ar)).) Electronic record keeping systems shall preserve the information submitted, as required by 44 U.S.C. 3101, reference (as)) and implementing regulations. Electronic record keeping systems shall also provide, wherever appropriate, for the electronic acknowledgment of electronic filings that are successfully submitted. PMs shall consider the record keeping functionality of any systems that store electronic documents and electronic signatures to ensure users have appropriate access to the information and can meet the Agency's record keeping needs.

I4. International Cooperative Program Management

I4.1. An international cooperative program is any acquisition system, subsystem, component, or technology program with an acquisition strategy that includes participation by one or more foreign nations, through an international agreement, during any phase of a system's life cycle. These international agreements shall comply with USD(AT&L)-issued streamlined

procedures for review and approval rather than the procedures in DoDD 5530.3, reference (at). All international cooperative programs shall fully comply with foreign disclosure and program protection requirements. Programs containing classified information shall have a Delegation of Disclosure Authority Letter or other written authorization issued by the DoD Component's cognizant foreign disclosure office prior to entering discussions with potential foreign partners.

I4.2. Acquisition and Cross Servicing Agreement (ACSA). PMs shall be aware of and understand the legal authority (references (av) and (au)) for the acquisition and reciprocal transfer of logistic support, supplies, and services from eligible countries and international organizations. They shall consider the long-term potential of ACSAs in developing the support strategy.

I4.3. The DoD Components shall not terminate or substantially reduce participation in international cooperative ACAT ID programs under signed international agreements without USD(AT&L) approval; or in international cooperative ACAT IAM programs without ASD(C3I) approval. A DoD Component may not terminate or substantially reduce U.S. participation in an international cooperative program until after providing notification to the USD(AT&L) or ASD(C3I). As a result of that notification, the USD(AT&L) or the ASD(C3I) may require the DoD Component to continue to provide some or all of the funding for that program in order to minimize the impact on the international cooperative program. Substantial reduction is defined as a funding or quantity decrease of 25 percent or more in the total funding or quantities in the latest President's Budget for that portion of the international cooperative program funded by the DoD Component seeking the termination or reduced participation.

I5. Joint Program Management. The DoD Components shall not terminate or substantially reduce participation in joint ACAT ID programs without Requirements Authority review and USD(AT&L) approval; or in joint ACAT IA programs without Requirements Authority review and ASD(C3I) approval. The USD(AT&L) or ASD(C3I) may require a DoD Component to continue some or all funding, as necessary, to sustain the joint program in an efficient manner, despite approving their request to terminate or reduce participation. Substantial reduction is defined as a funding or quantity decrease of 50 percent or more in the total funding or quantities in the latest President's Budget for that portion of the joint program funded by the DoD Component seeking the termination or reduced participation.