



Department of Defense INSTRUCTION

NUMBER 5000.02
December 8, 2008

USD(AT&L)

SUBJECT: Operation of the Defense Acquisition System

References: See Enclosure 1

1. PURPOSE. This Instruction:

a. Reissues Reference (a) to implement DoD Directive 5000.01 (Reference (b)), the guidelines of Office of Management and Budget (OMB) Circular A-11 (Reference (c)), and the various laws, policy, and regulations listed in Enclosure 1 of this issuance.

b. Establishes a simplified and flexible management framework for translating capability needs and technology opportunities, based on approved capability needs, into stable, affordable, and well-managed acquisition programs that include weapon systems, services, and automated information systems (AISs).

c. Consistent with statutory requirements and Reference (b), authorizes Milestone Decision Authorities (MDAs) to tailor the regulatory information requirements and acquisition process procedures in this Instruction to achieve cost, schedule, and performance goals.

2. APPLICABILITY AND SCOPE. This Instruction applies to:

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

b. All defense technology projects and acquisition programs, including acquisitions of services. Some requirements, where stated, apply only to Major Defense Acquisition Programs (MDAPs) or Major Automated Information System (MAIS) programs.

c. Highly sensitive classified, cryptologic, and intelligence projects and programs shall follow this Instruction and Reference (b) to the extent practicable.

d. Joint Department of Defense and Director of National Intelligence oversight of wholly and majority National Intelligence Program-funded acquisition programs shall be conducted in accordance with Intelligence Community Policy Guidance 105.1 (Reference (d)), and the Memorandum of Agreement between the Director of National Intelligence and the Secretary of Defense concerning the Management of Acquisition Programs Executed at the Department of Defense Intelligence Community Elements (Reference (e)).

3. RESPONSIBILITIES

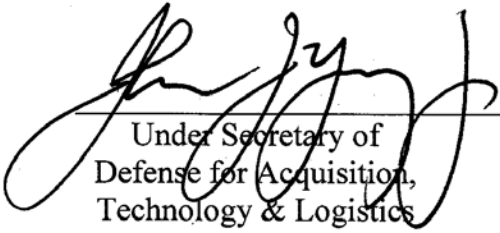
a. MDAs shall establish mandatory procedures for assigned programs. These procedures shall not exceed the requirements for MDAPs and MAIS and other acquisition programs established in this Instruction or in Reference (b).

b. The Heads of the DoD Components shall keep the issuance of any directives, instructions, policy memorandums, or regulations necessary to implement the mandatory procedures contained in this Instruction and Reference (b) to a minimum. Waivers or requests for exceptions to the provisions of this Instruction shall be submitted to the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)), the Assistant Secretary of Defense for Networks and Information Integration (ASD(NII)), or the Director, Operational Test and Evaluation (DOT&E), as appropriate, via the Component Acquisition Executive (CAE). Statutory requirements cannot be waived unless the statute specifically provides for waiver of the stated requirements.

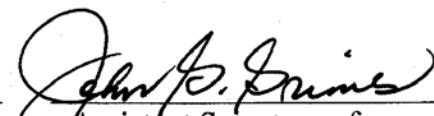
4. PROCEDURES. See Enclosure 2. Additionally, Enclosure 3 of this issuance provides a summary of acquisition category (ACAT) program levels and the decision authority for each ACAT. Tables in Enclosure 4 identify statutory and regulatory information requirements for all milestones and phases, Earned Value Management (EVM) implementation policy, the statutory and regulatory policy for Acquisition Program Baselines (APBs), and program categories with unique decision forums or policies. Enclosure 5 identifies the specific statutory and regulatory requirements applicable to information technology (IT) programs, including National Security Systems (NSS). Enclosure 6 details specific test and evaluation (T&E) procedures. Enclosure 7 provides detailed policy for resource estimation. The policy for Human Systems Integration (HSI) is in Enclosure 8; and policy applicable to the acquisition of services is in Enclosure 9. Enclosure 10 summarizes the administrative and international policy applicable to all acquisition programs. Enclosure 11 provides specific policy applicable to Defense Business Systems, and Enclosure 12 provides policy for Systems Engineering.

5. RELEASABILITY. UNLIMITED. This Instruction is approved for public release. Copies may be obtained through the Internet from the DoD Issuances Web Site at <http://www.dtic.mil/whs/directives>.

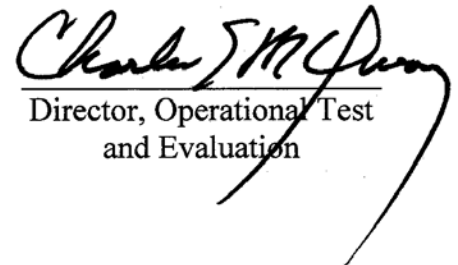
6. EFFECTIVE DATE. This Instruction is effective immediately.



Under Secretary of
Defense for Acquisition,
Technology & Logistics



Assistant Secretary of
Defense for Networks and
Information Integration



Director, Operational Test
and Evaluation

Enclosures

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3. Acquisition Category (ACAT) and Milestone Decision Authority (MDA)
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REFERENCES

- (a) DoD Instruction 5000.2, "Operation of the Defense Acquisition System," May 12, 2003 (hereby canceled)
- (b) DoD Directive 5000.01, "The Defense Acquisition System," May 12, 2003
- (c) Office of Management and Budget (OMB) Circular A-11, "Preparing, Submitting, and Executing the Budget," current edition
- (d) Intelligence Community Policy Guidance 105.1, "Acquisition," July 12, 2007¹
- (e) Memorandum of Agreement between the Director of National Intelligence and the Secretary of Defense concerning the Management of Acquisition Programs Executed at the Department of Defense Intelligence Community Elements, March 2008²
- (f) Defense Acquisition Guidebook³
- (g) Section 803 of Public Law 107-314, "Bob Stump National Defense Authorization Act for Fiscal Year 2003," "Spiral development under major defense acquisition programs"
- (h) Chairman of the Joint Chiefs of Staff Instruction 3170.01, "Joint Capabilities Integration and Development System," May 1, 2007
- (i) DoD Directive 8000.01, "Management of DoD Information Resources and Information Technology," February 27, 2002
- (j) DoD Information Technology Standards Registry⁴
- (k) Title 10, United States Code
- (l) DoD Directive 8320.02, "Data Sharing in a Net-Centric Department of Defense," December 2, 2004
- (m) DoD Instruction 5200.39, "Critical Program Information (CPI) Protection Within the Department of Defense," July 16, 2008
- (n) Technology Readiness Assessment (TRA) Deskbook, May 2005⁵
- (o) Section 818 of Public Law 109-364, "John Warner National Defense Authorization Act for Fiscal Year 2007," "Determination of Contract Type for Development Programs"
- (p) DoD Instruction 4630.09, "Wireless Communications Waveform Development and Management," November 3, 2008
- (q) Defense Intelligence Agency Directive 5000.200, "Intelligence Threat Support for Major Defense Acquisition Programs," January 19, 2005⁶
- (r) DoD Instruction 1100.22, "Guidance for Determining Workforce Mix," September 7, 2006
- (s) DoD Directive 4151.18, "Maintenance of Military Materiel," March 31, 2004
- (t) ISO 15418-1999- "EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance"
- (u) ISO 15434-1999 – "Transfer Syntax for High Capacity ADC Media"

¹ http://www.dni.gov/electronic_reading_room/ICPG%20105.1.pdf

² <https://akss.dau.mil/Documents/Policy/SECDEF%20MOA%20NIP-Funded%20Acquisition%20Programs%20Executed%20at%20the%20DoD%20Intelligence%20Community%20Elements.pdf>

³ <http://akss.dau.mil/dag/>

⁴ <https://disronline.disa.mil/>

⁵ <https://acc.dau.mil/GetAttachment.aspx?id=18545&pname=file&aid=729&lang=en-US>

⁶ Defense Intelligence Agency, Office of the Director, (703) 695-7353

- (v) Sections 11103, 11313, 11317, and subtitle III of title 40, United States Code (formerly the Clinger-Cohen Act of 1996)
- (w) Section 814 of Public Law 110-417, "Duncan Hunter National Defense Authorization Act for Fiscal Year 2009," "Configuration Steering Boards for Cost Control Under Major Defense Acquisition Programs"
- (x) Acquisition Knowledge Sharing System⁷
- (y) Section 644 of title 15, United States Code, "Procurement strategies; contract bundling"
- (z) Public Law 101-576, "Chief Financial Officers Act of 1990," November 15, 1990
- (aa) Statement of Federal Financial Accounting Standards (SFFAS) No. 6, "Accounting for Property, Plant, and Equipment," June 1996
- (ab) Section 1115 of title 31, United States Code, "Performance plans"
- (ac) Section 4321 et seq. of title 42, United States Code, "National Environmental Policy Act"
- (ad) Executive Order 12114, "Environmental Effects Abroad of Major Federal Actions," January 4, 1979
- (ae) Sections 305 and 901 through 904 of title 47, United States Code
- (af) Section 104 of Public Law 102-538, The National Telecommunications and Information Organization Act, "Spectrum Management Activities"
- (ag) Section 811 of Public Law 106-398, "Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001," "Acquisition and Management of Information Technology"
- (ah) Section 806 of Public Law 109-163, "National Defense Authorization Act for Fiscal Year 2006," "Congressional Notification of Cancellation of Major Automated Information Systems"
- (ai) DoD Instruction 8580.1, "Information Assurance (IA) in the Defense Acquisition System," July 9, 2004
- (aj) DoD Instruction 5000.67, "Prevention and Mitigation of Corrosion on DoD Military Equipment and Infrastructure," January 25, 2008
- (ak) DoD Directive 4630.05, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," May 5, 2004
- (al) DoD Instruction 4630.8, "Procedures for Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," June 30, 2004
- (am) Chairman of the Joint Chiefs of Staff Manual 3170.01, "Operation of the Joint Capabilities Integration and Development System," May 1, 2007
- (an) Chairman of the Joint Chiefs of Staff Instruction 6212.01D, "Interoperability and Supportability of Information Technology and National Security Systems," March 8, 2006
- (ao) DoD Instruction 8320.04, "Item Unique Identification (IUID) Standards for Tangible Personal Property," June 16, 2008
- (ap) DoD Directive 5250.01, "Management of Signature Support Within the Department of Defense," January 31, 2008
- (aq) DoD Directive 4650.1, "Policy for Management and Use of the Electromagnetic Spectrum," June 8, 2004
- (ar) DoD Directive 5105.21, "Defense Intelligence Agency (DIA)," March 18, 2008
- (as) Defense Intelligence Agency Instruction 5000.002, "Intelligence Threat Support for Major Defense Acquisition Programs," August 23, 2005⁸
- (at) DoD 5000.04-M-1, "Cost and Software Data Reporting (CSDR) Manual," April 18, 2007

⁷ <http://akss.dau.mil/>

⁸ Defense Intelligence Agency, Office of the Deputy Director for Analysis, (202) 231-4855

- (au) DoD Earned Value Management Implementation Guide, October 2006⁹
- (av) American National Standards Institute (ANSI)/Electronic Industries Alliance (EIA) 748-A-1998 (R2002), August 28, 2002
- (aw) National Security Space Acquisition Policy 03-01, "Guidance for DoD Space System Acquisition Process," December 27, 2004¹⁰
- (ax) Intelligence Community Directive 105, "Acquisition," August 15, 2006
- (ay) USD(AT&L) Memorandum, "Ballistic Missile Defense Program Implementation Guidance," February 13, 2002
- (az) Section 811 of Public Law 109-364, "John Warner National Defense Authorization Act for Fiscal Year 2007," "Time-Certain Development for Department of Defense Information Technology Business Systems"
- (ba) DoD IT Business Systems Investment Review Process: Business Enterprise Architecture (BEA) Compliance Guidance, April 10, 2006¹¹
- (bb) Office of the Secretary of Defense Memorandum, "Designation of Programs for [year] OSD Test and Evaluation (T&E) Oversight," current edition
- (bc) DoD Directive 5000.04, "Cost Analysis Improvement Group (CAIG)," August 16, 2006
- (bd) DoD 5000.4-M, "Cost Analysis Guidance and Procedures," December 11, 1992
- (be) DoD Instruction 1322.26, "Development, Management, and Delivery of Distributed Learning," June 16, 2006
- (bf) DoD Directive 1322.18, "Military Training," September 3, 2004
- (bg) Federal Acquisition Regulation Subpart 37.6, "Performance-Based Acquisition"
- (bh) Defense Federal Acquisition Regulation Supplement Section 207.170, "Consolidation of contract requirements"
- (bi) DoD Benefit Analysis Guidebook, undated¹²
- (bj) Federal Acquisition Regulation Subpart 17.1, "Multi-Year Contracting"
- (bk) Defense Federal Acquisition Regulation Supplement Section 217.171, "Multiyear contracts for services."
- (bl) OMB Circular A-94, "Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs," Section 13, "Special Guidance for Lease-Purchase Analysis," October 29, 1992
- (bm) Federal Acquisition Regulation Part 16, "Types of Contracts"
- (bn) Federal Acquisition Regulation Part 12, "Acquisition of Commercial Items"
- (bo) Defense Federal Acquisition Regulation Supplement Section 237.170, "Approval of contracts and task orders for services"
- (bp) Defense Federal Acquisition Regulation Supplement Subpart 217.78, "Contracts or Delivery Orders Issued by a Non-DoD Agency"
- (bq) Defense Federal Acquisition Regulation Supplement Subpart 252.215-7004, "Excessive Pass-Through Charges"
- (br) Section 852 of Public Law 109-364, "John Warner National Defense Authorization Act for Fiscal Year 2007," "Report and Regulations on Excessive Pass-Through Charges"
- (bs) DoD Directive 2010.6, "Materiel Interoperability with Allies and Coalition Partners," November 10, 2004
- (bt) DoD Directive 5530.3, "International Agreements," June 11, 1987

⁹ <http://guidebook.dcm.mil/79/EVMIG.doc>

¹⁰ <https://acc.dau.mil/CommunityBrowser.aspx?id=33430>

¹¹ http://www.dod.mil/dbt/products/investment/BEA_Compliance_Guidance_060410_FINAL.pdf

¹² <http://www.acq.osd.mil/osbp/news/Bundling%20Guidebook%20October%202007.pdf>

- (bu) DoD Directive 2010.9, "Acquisition and Cross-Servicing Agreements," April 28, 2003
- (bv) DoD Directive 5015.2, "DoD Records Management Program," March 6, 2000
- (bw) Section 3101 et seq. of title 44, United States Code, "Records Management by Federal Agencies"
- (bx) DoD IT Business Systems Investment Review Process: Investment Review Board Concept of Operations, July 12, 2006¹³
- (by) DoD IT Business Systems Investment Review Process: Investment Certification and Annual Review Process User Guidance, August 22, 2006¹⁴
- (bz) MIL-STD-882D, "DoD Standard Practice for System Safety," February 10, 2000
- (ca) DoD Directive 8320.03, "Unique Identification (UID) Standards for a Net-Centric Department of Defense," March 23, 2007

¹³ http://www.dod.mil/dbt/products/investment/IRB_CONOPS_29-AUG-2006.pdf

¹⁴ http://www.dod.mil/dbt/products/investment/IRB_Guidance_22-AUG-2006.pdf

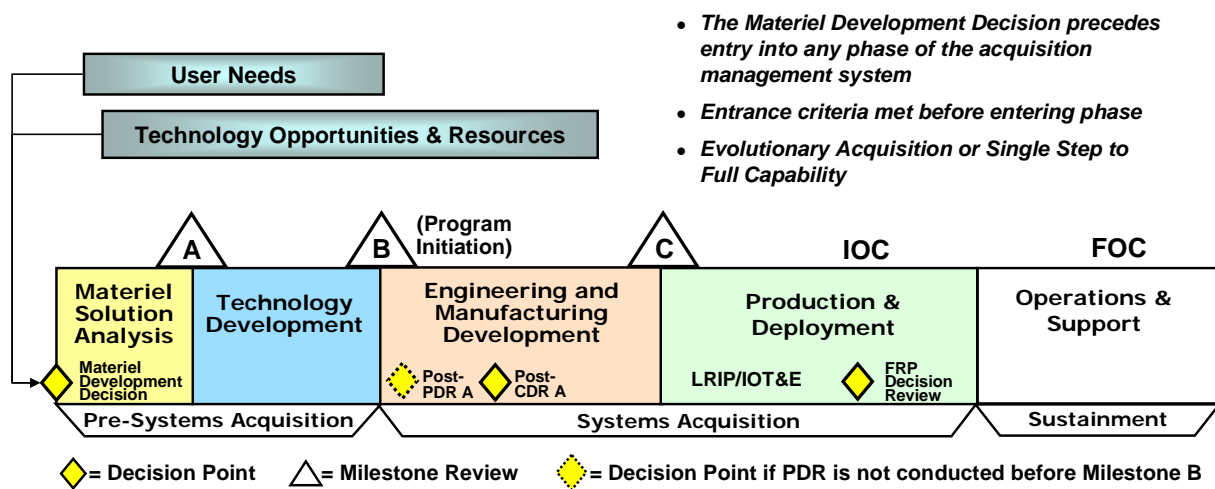
ENCLOSURE 2

PROCEDURES

1. DEFENSE ACQUISITION MANAGEMENT SYSTEM

a. Figure 1 depicts the Defense Acquisition Management System.

Figure 1. The Defense Acquisition Management System.



b. Consistent with this Instruction and Reference (b), the Program Manager (PM) and the MDA shall exercise discretion and prudent business judgment to structure a tailored, responsive, and innovative program.

c. Following the Materiel Development Decision, the MDA may authorize entry into the acquisition management system at any point consistent with phase-specific entrance criteria and statutory requirements. Progress through the acquisition management system depends on obtaining sufficient knowledge to continue to the next phase of development.

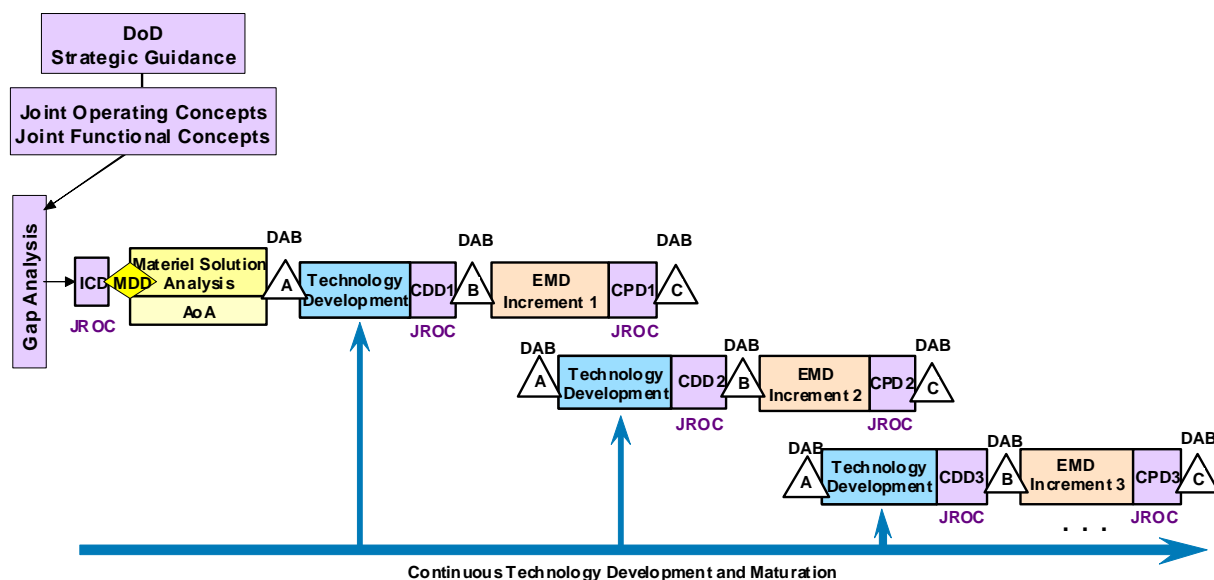
d. The tables in Enclosure 4 identify the statutory and regulatory information requirements for each milestone and decision point. Additional non-mandatory guidance on best practices, lessons learned, and expectations is available in the Defense Acquisition Guidebook (Reference (f)).

e. Procedures associated with Acquisitions of Services and with Defense Business Systems are described in Enclosures 9 and 11, respectively.

2. EVOLUTIONARY ACQUISITION

a. Evolutionary acquisition is the preferred DoD 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 objective is to balance needs and available capability with resources, and to put capability into the hands of the user quickly. The success of the strategy depends on phased definition of capability needs and system requirements, and the maturation of technologies that lead to disciplined development and production of systems that provide increasing capability over time. (See Figure 2.)

Figure 2. Requirements and Acquisition Process Flow.



b. Evolutionary acquisition requires collaboration among the user, tester, and developer. In this process, a needed operational capability is met over time by developing several increments, each dependent on available mature technology. Technology development preceding initiation of an increment shall continue until the required level of maturity is achieved, and prototypes of the system or key system elements are produced. Successive Technology Development Phases may be necessary to mature technology for multiple development increments (section 803 of Public Law (P.L.) 107-314 (Reference (g))).

c. Each increment is a militarily useful and supportable operational capability that can be developed, produced, deployed, and sustained. Each increment will have its own set of threshold and objective values set by the user. Block upgrades, pre-planned product improvement, and similar efforts that provide a significant increase in operational capability and meet an acquisition category threshold specified in this document shall be managed as separate increments under this Instruction.

3. USER NEEDS AND TECHNOLOGY OPPORTUNITIES

a. The capability needs and acquisition management systems shall use Joint Concepts, integrated architectures, and an analysis of doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) in an integrated, collaborative process to define needed capabilities to guide the development of affordable systems. The Chairman of the Joint Chiefs of Staff, with the assistance of the Joint Requirements Oversight Council (JROC), shall assess and provide advice regarding military capability needs for defense acquisition programs. The process through which the Chairman provides advice is described in Chairman of the Joint Chiefs of Staff Instruction 3170.01 (Reference (h)). Representatives from multiple DoD communities shall assist in formulating broad, time-phased, operational goals, and describing requisite capabilities in the Initial Capabilities Document (ICD). They shall examine multiple concepts to optimize the way the Department of Defense provides these capabilities.

b. When the ICD demonstrates the need for a materiel solution, the JROC shall recommend that the MDA consider potential materiel solutions. The cognizant MDA is determined as described in Enclosure 3. The MDA, working with appropriate stakeholders, shall determine whether there is sufficient information to proceed with a Materiel Development Decision. If the MDA decides that additional analysis is required, a designated office shall prepare, and the MDA shall approve, study guidance to ensure that necessary information is available to support the decision.

c. Promising technologies shall be identified from all sources domestic and foreign, including government laboratories and centers, academia, and the commercial sector. In addition, PMs shall consider the use of technologies developed under the Small Business Innovation Research (SBIR) program, and give favorable consideration to successful SBIR technologies. The risk of introducing these technologies into the acquisition process shall be reduced; coordination, cooperation, and mutual understanding of technology issues shall be promoted. The conduct of Science and Technology (S&T) activities shall not preclude, and where practicable, shall facilitate future competition.

d. The DoD Enterprise Architecture shall underpin all information architecture development. In accordance with DoD Directive 8000.01 (Reference (i)), each integrated solution architecture shall have three views: operational, systems, and technical. The standards used to form the technical views of integrated architectures shall be selected from those contained in the current approved version of the DoD IT Standards Registry (Reference (j)).

4. MATERIEL SOLUTION ANALYSIS PHASE

a. Purpose. The purpose of this phase is to assess potential materiel solutions and to satisfy the phase-specific entrance criteria for the next program milestone designated by the MDA.

b. Entrance Criteria. Entrance into this phase depends upon an approved ICD resulting from the analysis of current mission performance and an analysis of potential concepts across the DoD Components, international systems from allies, and cooperative opportunities.

c. Phase Description

(1) The Materiel Solution Analysis Phase begins with the Materiel Development Decision review. The Materiel Development Decision review is the formal entry point into the acquisition process and shall be mandatory for all programs. Table 3 in Enclosure 4 identifies all regulatory requirements for the Materiel Development Decision review.

(2) Funding for this phase shall normally be limited to satisfaction of the Materiel Solution Analysis Phase objectives.

(3) At the Materiel Development Decision review, the Joint Staff shall present the JROC recommendations and the DoD Component shall present the ICD including: the preliminary concept of operations, a description of the needed capability, the operational risk, and the basis for determining that non-materiel approaches will not sufficiently mitigate the capability gap. The Director, Program Analysis & Evaluation (DPA&E), (or DoD Component equivalent) shall propose study guidance for the Analysis of Alternatives (AoA).

(4) The MDA shall approve the AoA study guidance; determine the acquisition phase of entry; identify the initial review milestone; and designate the lead DoD Component(s). MDA decisions shall be documented in an Acquisition Decision Memorandum (ADM). The MDA's decision to begin Materiel Solution Analysis DOES NOT mean that a new acquisition program has been initiated.

(5) Following approval of the study guidance, the lead DoD Component(s) shall prepare an AoA study plan to assess preliminary materiel solutions, identify key technologies, and estimate life-cycle costs. The purpose of the AoA is to assess the potential materiel solutions to satisfy the capability need documented in the approved ICD.

(6) The ICD and the AoA study guidance shall guide the AoA and Materiel Solution Analysis Phase activity. The AoA shall focus on identification and analysis of alternatives, measures of effectiveness, cost, schedule, concepts of operations, and overall risk. The AoA shall assess the critical technology elements (CTEs) associated with each proposed materiel solution, including technology maturity, integration risk, manufacturing feasibility, and, where necessary, technology maturation and demonstration needs. To achieve the best possible system solution, emphasis shall be placed on innovation and competition. Existing commercial-off-the-shelf (COTS) functionality and solutions drawn from a diversified range of large and small businesses shall be considered.

(7) If the MDA determines that the initial review milestone specified at the Materiel Development Decision is inconsistent with the maturity of the preferred materiel solution, an alternative review milestone shall be designated.

(8) The Materiel Solution Analysis Phase ends when the AoA has been completed, materiel solution options for the capability need identified in the approved ICD have been recommended by the lead DoD Component conducting the AoA, and the phase-specific entrance criteria for the initial review milestone have been satisfied.

5. TECHNOLOGY DEVELOPMENT PHASE

a. Purpose. The purpose of this phase is to reduce technology risk, determine and mature the appropriate set of technologies to be integrated into a full system, and to demonstrate CTEs on prototypes. Technology Development is a continuous technology discovery and development process reflecting close collaboration between the S&T community, the user, and the system developer. It is an iterative process designed to assess the viability of technologies while simultaneously refining user requirements.

b. Entrance Criteria. Entrance into this phase depends on the completion of the AoA, a proposed materiel solution, and full funding for planned Technology Development Phase activity.

c. Phase Description

(1) At Milestone A, the MDA shall review the proposed materiel solution and the draft Technology Development Strategy (TDS). The Technology Development Phase begins when the MDA has approved a materiel solution and the TDS, and has documented the decision in an ADM. The tables in Enclosure 4 identify all statutory and regulatory requirements applicable to Milestone A.

(2) The MDA for an MDAP, without the authority to delegate, shall sign a certification memorandum for record prior to Milestone A approval (section 2366a of title 10, United States Code (U.S.C.) (Reference (k))). The memorandum shall include the statements in section 2366a of Reference (k) without modification. The ADM at Milestone A shall include the statement: "I have made the certifications required by section 2366a of title 10, United States Code."

(3) If, during Technology Development, the cost estimate upon which the MDA based the Milestone A certification increases by 25 percent or more, the PM shall notify the MDA of the increase. The MDA shall again consult with the JROC on matters related to program requirements and the military need(s) for the system. The MDA shall determine whether the level of resources required to develop and procure the system remains consistent with the priority level assigned by the JROC. If not, the MDA may rescind the Milestone A approval if the MDA determines that such action is in the interest of national defense.

(4) This effort normally shall be funded only for the advanced development work. Technology development for an MDAP shall not proceed without Milestone A approval. For business area capabilities, commercially available solutions shall be preferred. A favorable Milestone A decision DOES NOT mean that a new acquisition program has been initiated.

(5) At Milestone A, the DoD Component shall submit a cost estimate for the proposed solution(s) identified by the AoA. If requested by the MDA, the Cost Analysis Improvement Group (CAIG) shall develop an independent cost assessment.

(6) Final Requests for Proposals (RFPs) for the Technology Development Phase shall not be released, nor shall any action be taken that would commit the program to a particular contracting strategy for Technology Development, until the MDA has approved the TDS.

(7) The TDS shall document the following:

(a) The rationale for adopting an evolutionary strategy (the preferred approach) or using a single-step-to-full-capability strategy (e.g., for common supply items or COTS items). For an evolutionary acquisition, the TDS shall include a preliminary description of how the materiel solution will be divided into acquisition increments based on mature technology and an appropriate limitation on the number of prototype units or engineering development models that may be produced in support of a Technology Development Phase;

(b) A preliminary acquisition strategy, including overall cost, schedule, and performance goals for the total research and development program;

(c) Specific cost, schedule, and performance goals, including exit criteria, for the Technology Development Phase;

(d) A description of the approach that will be used to ensure data assets will be made visible, accessible, and understandable to any potential user as early as possible (DoD Directive 8320.02 (Reference (l))).

(e) A list of known or probable Critical Program Information (CPI) and potential countermeasures such as anti-tamper in the preferred system concept and in the critical technologies and competitive prototypes to inform program protection (DoD Instruction 5200.39 (Reference (m))) and design integration during the Technology Development Phase.

(f) A time-phased workload assessment identifying the manpower and functional competency requirements for successful program execution and the associated staffing plan, including the roles of government and non-government personnel.

(g) A data management strategy (see Section 9 in Enclosure 12).

(h) A summary of the CAIG-approved Cost and Software Data Reporting (CSDR) Plan(s) for the Technology Development Phase (see Section 3 in Enclosure 7).

(8) During Technology Development and succeeding acquisition phases, the PM shall give small business the maximum practical opportunity to participate. Where feasible, the PM shall leverage programs which employ people with disabilities.

(9) The TDS and associated funding shall provide for two or more competing teams producing prototypes of the system and/or key system elements prior to, or through, Milestone B. Prototype systems or appropriate component-level prototyping shall be employed to reduce technical risk, validate designs and cost estimates, evaluate manufacturing processes, and refine requirements. Information technology initiatives shall prototype subsets of overall functionality

using one or more teams, with the intention of reducing enterprise architecture risks, prioritizing functionality, and facilitating process redesign.

d. Additional Phase Requirements

(1) Additional considerations apply for shipbuilding and AIS programs.

(a) The MDA may initiate shipbuilding programs at the beginning of Technology Development. The information required by the tables in Enclosure 4 shall support program initiation. The CAIG shall prepare a cost assessment in lieu of an independent cost estimate (ICE), and the DoD Component shall provide a preliminary assessment of the maturity of key technologies. CAIG cost assessments for other acquisition category (ACAT) I and IA programs shall be prepared at the MDA's request.

(b) Before requesting a Milestone A decision for an AIS program, DoD Components shall affirmatively answer the following questions:

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

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

(2) The ICD and the TDS shall guide, and systems engineering planning shall support, this effort. Multiple technology development demonstrations may be necessary before the user and developer agree that a proposed technology solution is affordable, militarily useful, and based on mature, demonstrated technology. Life-cycle sustainment of proposed technologies shall be planned. CPI shall be identified and shall inform the preparation of the Program Protection Plan (PPP).

(3) If an evolutionary strategy is used, the initial capability represents only partial fulfillment of the overall capability described in the ICD, and successive technology development efforts continue until all capabilities have been achieved. In an evolutionary acquisition, the identification and development of the technologies necessary for follow-on increments continue in parallel with the acquisition of preceding increments, allowing the mature technologies to more rapidly proceed into the Engineering and Manufacturing Development (EMD) Phase. Each increment of an evolutionary acquisition program that includes a Milestone A shall have an MDA-approved TDS.

(4) The management and mitigation of technology and technology integration 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 routine aspect of DoD 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 (see the “Technology Readiness Assessment (TRA) Deskbook” (Reference (n))). Technology readiness 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 or engage the user in a dialog on appropriately modifying the requirements.

(5) PMs for all programs shall formulate a viable Reliability, Availability, and Maintainability (RAM) strategy that includes a reliability growth program as an integral part of design and development. RAM shall be integrated within the Systems Engineering processes, documented in the program’s Systems Engineering Plan (SEP) and Life-Cycle Sustainment Plan (LCSP), and assessed during technical reviews, test and evaluation (T&E), and Program Support Reviews (PSRs).

(6) When consistent with Technology Development Phase objectives, associated prototyping activity, and the MDA-approved TDS, the PM shall plan a Preliminary Design Review (PDR) before Milestone B. PDR planning shall be reflected in the TDS and shall be conducted for the candidate design(s) to establish the allocated baseline (hardware, software, human/support systems) and underlying architectures and to define a high-confidence design. All system elements (hardware and software) shall be at a level of maturity commensurate with the PDR entrance and exit criteria. A successful PDR will inform requirements trades; improve cost estimation; and identify remaining design, integration, and manufacturing risks. The PDR shall be conducted at the system level and include user representatives and associated certification authorities. The PDR Report shall be provided to the MDA at Milestone B and include recommended requirements trades based upon an assessment of cost, schedule, and performance risk.

(7) The project shall exit the Technology Development Phase when an affordable program or increment of militarily useful capability has been identified; the technology and manufacturing processes for that program or increment have been assessed and demonstrated in a relevant environment; manufacturing risks have been identified; a system or increment can be developed for production within a short timeframe (normally less than 5 years for weapon systems); or, when the MDA decides to terminate the effort. During Technology Development, the user shall prepare the Capability Development Document (CDD) to support initiation of the acquisition program or evolutionary increment, refine the integrated architecture, and clarify how the program will lead to joint warfighting capability. The CDD builds on the ICD and provides the detailed operational performance parameters necessary to complete design of the proposed system. A Milestone B decision follows the completion of Technology Development.

6. ENGINEERING AND MANUFACTURING DEVELOPMENT (EMD) PHASE. (Statutes applicable to the Systems Development and Demonstration Phase shall be applicable to the EMD phase.)

a. Purpose. The purpose of the EMD Phase is to develop a system or an increment of capability; complete full system integration (technology risk reduction occurs during Technology Development); develop an affordable and executable manufacturing process; ensure operational supportability with particular attention to minimizing the logistics footprint; implement human systems integration (HSI); design for producibility; ensure affordability; protect CPI by implementing appropriate techniques such as anti-tamper; and demonstrate system integration, interoperability, safety, and utility. The CDD, Acquisition Strategy, SEP, and Test and Evaluation Master Plan (TEMP) shall guide this effort.

b. Entrance Criteria. Entrance into this phase depends on technology maturity (including software), approved requirements, and full funding. Unless some other factor is overriding in its impact, the maturity of the technology shall determine the path to be followed.

c. Phase Description

(1) Before proposing a new acquisition program, the DoD Components shall affirmatively answer the questions at sub-paragraphs 5.d.(1)(b)1 through 5.d.(1)(b)3 of this enclosure.

(2) Prior to beginning EMD, users shall identify and the requirements authority shall approve a minimum set of key performance parameters (KPPs), included in the CDD, that shall guide the efforts of this phase. Consistent with paragraph 9.d. of this enclosure, these KPPs may be refined, with the approval of the requirements authority, as conditions warrant. The CDD defines the set of KPPs that will apply to each increment of EMD (or to the entire system in a single step to full capability). To maximize program trade space and focus test and evaluation, the MDA, PEO, and PM shall work closely with the requirements authority to minimize KPPs and limit total identified program requirements. Performance requirements that do not support the achievement of KPP thresholds shall be limited and considered a part of the engineering trade space during development. During OT&E, a clear distinction shall be made between performance values that do not meet threshold requirements in the user capabilities document and performance values that should be improved to provide enhanced operational capability in future upgrades.

(3) EMD begins at Milestone B, which is normally 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 unless the MDA determines that the increment will be initiated at Milestone C. At Milestone B, the MDA shall approve the Acquisition Strategy and the Acquisition Program Baseline (APB). The MDA decision shall be documented in an ADM. The tables in Enclosure 4 identify the statutory and regulatory requirements that shall be met at Milestone B.

(4) Final RFPs for the EMD Phase, or any succeeding acquisition phase, shall not be released, nor shall any action be taken that would commit the program to a particular contracting strategy, until the MDA has approved the Acquisition Strategy. The PM shall include language in the RFP advising offerors that (1) the government will not award a contract to an offeror whose proposal is based on CTEs that have not been demonstrated in a relevant environment,

and (2) that offerors will be required to specify the technology readiness level of the CTEs on which their proposal is based and to provide reports documenting how those CTEs have been demonstrated in a relevant environment.

(5) The MDA for an MDAP, without the authority to delegate, shall assess the program business case and sign a certification memorandum prior to Milestone B approval (section 2366b of Reference (k)). The memorandum shall include the statements in section 2366b of Reference (k) without modification. If the program is initiated at a later date, i.e., Milestone C, a similar memorandum shall be prepared as a matter of policy. The ADM shall include the statement: "I have reviewed the program and the business case analysis and have made the certifications required, or executed a waiver of the applicability of one or more of the components of the certification required, as authorized by subsection 2366b(d) of title 10, United States Code." The PM shall immediately notify the MDA of any program changes that alter the substantive basis of the MDA certification or otherwise cause the program to deviate significantly from the materiel presented to the MDA in support of such certification.

(6) EMD has two major efforts: Integrated System Design, and System Capability and Manufacturing Process Demonstration. Additionally, the MDA shall conduct a Post-PDR Assessment when consistent with the Acquisition Strategy, and a Post-Critical Design Review (CDR) Assessment to end Integrated System Design.

(a) Integrated System Design. This effort is intended to define system and system-of-systems functionality and interfaces, complete hardware and software detailed design, and reduce system-level risk. Integrated System Design shall include the establishment of the product baseline for all configuration items.

(b) Post-PDR Assessment. If a PDR has not been conducted prior to Milestone B, the PM shall plan for a PDR as soon as feasible after program initiation. PDR planning shall be reflected in the Acquisition Strategy and conducted consistent with the policies specified in paragraph 5.d.(6). Following PDR, the PM shall plan and the MDA shall conduct a formal Post-PDR Assessment. The PDR report shall be provided to the MDA prior to the assessment and reflect any requirements trades based upon the PM's assessment of cost, schedule, and performance risk. The MDA will consider the results of the PDR and the PM's assessment, and determine whether remedial action is necessary to achieve APB objectives. The results of the MDA's Post-PDR Assessment shall be documented in an ADM.

(c) Post-CDR Assessment. The MDA shall conduct a formal program assessment following system-level CDR. The system-level CDR provides an opportunity to assess design maturity as evidenced by measures such as: successful completion of subsystem CDRs; the percentage of hardware and software product build-to specifications and drawings completed and under configuration management; planned corrective actions to hardware/software deficiencies; adequate developmental testing; an assessment of environment, safety and occupational health risks; a completed failure modes and effects analysis; the identification of key system characteristics; the maturity of critical manufacturing processes; and an estimate of system reliability based on demonstrated reliability rates.

1. The PM shall provide a Post-CDR Report to the MDA that provides an overall assessment of design maturity and a summary of the system-level CDR results which shall include, but not be limited to:

a. The names, organizations, and areas of expertise of independent subject matter expert participants and CDR chair;

b. A description of the product baseline for the system and the percentage of build-to packages completed for this baseline;

c. A summary of the issues and actions identified at the review together with their closure plans;

d. An assessment of risk by the participants against the exit criteria for the EMD Phase; and

e. Identification of those issues/risks that could result in a breach to the program baseline or substantively impact cost, schedule, or performance.

2. The MDA shall review the Post-CDR Report and the PM's resolution/mitigation plans and determine whether additional action is necessary to satisfy EMD Phase exit criteria and to achieve the program outcomes specified in the APB. The results of the MDA's Post-CDR Assessment shall be documented in an ADM.

3. Successful completion of the Post-CDR Assessment ends Integrated System Design and continues the EMD Phase into System Capability and Manufacturing Process Demonstration.

(d) System Capability and Manufacturing Process Demonstration. This effort is intended to demonstrate the ability of the system to operate in a useful way consistent with the approved KPPs and that system production can be supported by demonstrated manufacturing processes. The program shall enter System Capability and Manufacturing Process Demonstration upon completion of the Post-CDR Assessment and establishment of an initial product baseline. This effort shall end when the system meets approved requirements and is demonstrated in its intended environment using the selected production-representative article; manufacturing processes have been effectively demonstrated in a pilot line environment; industrial capabilities are reasonably available; and the system meets or exceeds exit criteria and Milestone C entrance requirements. Successful developmental test and evaluation (DT&E) to assess technical progress against critical technical parameters, early operational assessments, and, where proven capabilities exist, the use of modeling and simulation to demonstrate system/system-of-systems integration are critical during this effort. T&E should be used to assess improvements to mission capability and operational support based on user needs and should be reported in terms of operational significance to the user. 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.

d. Additional Phase Requirements

(1) For shipbuilding programs, the required program information shall be updated in support of the Milestone B decision, and the ICE shall be completed. The lead ship in a class shall normally be authorized at Milestone B. Technology readiness assessments shall consider the risk associated with critical subsystems 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 subsystem demonstration and an updated assessment of technology maturity.

(2) In an evolutionary acquisition program, the initial increment will be preceded by a Materiel Development Decision. Development of each succeeding increment shall begin with the milestone or decision point determined by the MDA, consistent with statute and the demonstrated maturity of key technologies. Production resulting from that increment shall begin with a Milestone C. The requirements of the tables at Enclosure 4 shall apply to each increment based on the ACAT level of the entire planned program.

(3) Each program or increment shall have an APB (see Section 4 and Table 6 in Enclosure 4) establishing program goals – thresholds and objectives – for the minimum number of cost, schedule, and performance parameters that describe the program over its life cycle.

(4) An affordability determination results from the process of addressing cost during the requirements process and is included in each CDD using life-cycle cost or, if available, total ownership cost. Transition into EMD 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 in anticipation of the Milestone B decision. In general, a Milestone B should be planned when a system concept has been selected, a PM has been assigned, requirements have been approved, and engineering and manufacturing development is ready to begin. In no case shall Milestone B be approved without full funding. The DoD Components shall fully fund their share of approved joint and international cooperative program commitments.

(5) At Milestone B, the MDA shall determine the Low-Rate Initial Production (LRIP) quantity for MDAPs and major systems. LRIP quantities shall be minimized. The LRIP quantity for an MDAP (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 (SAR) 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. The DOT&E, following consultation with the PM, shall determine the number of production or production-representative test articles required for live-fire test and evaluation (LFT&E) and initial operational test and evaluation (IOT&E) of programs on the OSD T&E Oversight List (MDAPs as defined in paragraph a(2)(B) of section 139 of Reference (k)). For a system that is not on the OSD Operational Test & Evaluation (OT&E) Oversight List, the operational test agency (OTA), following consultation with the PM, shall determine the number of test articles required for IOT&E. Modifications to an existing system with an established production base

may not require low-rate production to provide production or production-representative articles for operational testing; test articles, if needed, may come from the existing production line.

(6) EMD effectively integrates the acquisition, engineering, and manufacturing development processes with T&E (see Enclosure 6). T&E shall be conducted in an appropriate continuum of live, virtual, and constructive system and operational environments. Developmental and operational test activities shall be integrated and seamless throughout the phase. Evaluations shall take into account all available and relevant data and information from contractor and government sources. The independent planning of dedicated IOT&E (i.e., the OT&E required by paragraphs (a) and (b) of section 2399 of Reference (k)), and Follow-on OT&E (FOT&E), if required, shall be the responsibility of the appropriate OTA. Evaluations shall include a comparison with current mission capabilities using existing data, so that measurable improvements can be determined. If such evaluation is considered costly relative to the benefits gained, the PM shall propose an alternative evaluation approach. This evaluation shall make a clear distinction between deficiencies uncovered during testing relative to the approved requirements, and recommendations for improvement not directly linked to requirements. A DOT&E-approved LFT&E strategy shall guide LFT&E activity.

(7) The PM shall prepare and the MDA shall approve an Acquisition Strategy to guide activity during EMD.

(a) The Acquisition Strategy shall describe how the PM plans to employ contract incentives to achieve required cost, schedule, and performance outcomes.

(b) The strategy shall include a time-phased workload assessment identifying the manpower and functional competency requirements for successful program execution and the associated staffing plan, including the roles of government and non-government personnel.

(c) If the program is dependent on the outcome of other acquisition programs or must provide capabilities to other programs, those relationships shall be detailed in the acquisition strategy. Similarly, if a program is part of a system-of-systems or family-of-systems, the relationship and associated dependencies with other system elements shall be described.

(8) If the program acquisition strategy for a major system calls for the use of a lead system integrator, the MDA shall ensure that a contract is not awarded to an offeror that either has or is expected to acquire a direct financial interest in the development or construction of an individual system or an element of a system of systems. Exceptions may be granted as provided in section 2410p of Reference (k) which requires certification to the Committees on Armed Services of the Senate and House of Representatives. PMs shall stress the importance of appropriate checks and balances when contractors perform acquisition-related activities, and insist that the government will be singularly responsible for the performance of inherently governmental functions.

(9) The MDA for an MDAP shall select the contract type for a development program at Milestone B (section 818 of P.L. 109-364 (Reference (o))). The contract type shall be consistent with the level of program risk and may be either a fixed price or cost contract. The MDA may choose a cost-type contract only upon written determination that (1) the program is so complex and technically challenging that it would not be practicable to reduce program risk to a level that would permit the use of a fixed-price contract, and (2) the complexity and technical challenge of the program is not the result of a failure to meet the requirements of section 2366b of Reference (k). The MDA's written determination shall include an explanation of the level of program risk, and, if the MDA determines that the program risk is high, the steps that have been taken to reduce program risk and the reasons for proceeding with Acquisition Strategy approval and/or Milestone B despite the high level of program risk.

(10) At Milestone B, the PM shall submit application(s) through the DoD Component to the ASD(NII)/DoD Chief Information Officer (CIO) for the review and assessment of new or modified communications waveforms. If a waveform is added or modified after Milestone B, the application shall be reviewed at Milestone C (DoD Instruction 4630.09 (Reference (p))).

(11) The MDA shall assess compliance with chemical, biological, radiological, and nuclear survivability requirements at Milestones B and C.

(12) Prior to beginning development, the DoD Component sponsoring an MDAP that will replace an existing system shall prepare a Replaced System Sustainment Plan for the existing system if the capability provided by the existing system will remain necessary and relevant during fielding of and transition to the new system. The sustainment plan shall provide for the budgeting to sustain the existing system until the new system assumes the majority of mission responsibility. The plan shall include the schedule for developing and fielding the new system, and include an analysis of the ability of the existing system to maintain mission capability against relevant threats (section 2437 of Reference (k) and Defense Intelligence Agency Directive 5000.200 (Reference (q))).

(13) 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. The determination of the workforce mix shall be accomplished in accordance with DoD Instruction 1100.22 (Reference (r)).

(14) The Department of Defense may not conduct OT&E, including operational assessment (OA), IOT&E, or FOT&E, until the DOT&E approves, in writing, the OT&E portions of the T&E plan for programs on the OSD T&E Oversight List and the adequacy of the plans (including the projected level of funding) for the OT&E to be conducted in connection with that program. This does not preclude the use of data from other test events in OT&E evaluations. OTA and DOT&E evaluators shall take into account all available and relevant data and information from contractor and government sources.

7. PRODUCTION AND DEPLOYMENT PHASE

a. 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 and suitability of the system. The MDA shall make the decision to commit the Department of Defense to production at Milestone C and shall document the decision in an ADM. Milestone C authorizes entry into LRIP (for MDAPs and major systems), into production or procurement (for non-major systems that do not require LRIP) or into limited deployment in support of operational testing for MAIS programs or software-intensive systems with no production components. The tables in Enclosure 4 identify the statutory and regulatory requirements that shall be met at Milestone C.

b. Entrance Criteria. Entrance into this phase depends on the following criteria: acceptable performance in developmental test and evaluation and operational assessment (OSD OT&E oversight programs); mature software capability; no significant manufacturing risks; manufacturing processes under control (if Milestone C is full-rate production); an approved ICD (if Milestone C is program initiation); an approved Capability Production Document (CPD); a refined integrated architecture; acceptable interoperability; acceptable operational supportability; and demonstration that the system is affordable throughout the life cycle, fully funded, and properly phased for rapid acquisition. The CPD reflects the operational requirements, informed by EMD results, and details the performance expected of the production system. If Milestone C approves LRIP, a subsequent review and decision shall authorize full-rate production.

c. Phase Description. For MDAPs and other programs on the OSD T&E Oversight List, Production and Deployment has two major efforts, LRIP and Full-Rate Production and Deployment, and includes a Full-Rate Production Decision Review. For MAIS programs or software intensive systems with no production components, the Full-Rate Production Decision Review is referred to as the Full Deployment Decision Review.

(1) LRIP

(a) This 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 or production-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. Evaluations shall be conducted in the mission context expected at time of fielding, as described in the user's capability document. The MDA shall consider any new validated threat environments that will alter operational effectiveness. If the program has not demonstrated readiness to proceed to full-rate production, the MDA shall assess the cost and benefits of a break in production versus continuing buys before approving an increase in the LRIP quantity.

(b) LRIP is not applicable to AISs or software-intensive systems with no developmental hardware; however, a limited deployment phase may be applicable.

(c) 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.

(d) Except as specifically approved by the MDA, deficiencies identified in testing shall be resolved prior to proceeding beyond LRIP, and any fixes shall be verified in FOT&E.

(2) Full-Rate Production Criteria. An MDAP may not proceed beyond LRIP without MDA approval. The knowledge required to support this approval shall include demonstrated control of the manufacturing process and acceptable reliability, the collection of statistical process control data, and the demonstrated control and capability of other critical processes.

(a) For programs on the OSD T&E Oversight List, the decision to continue beyond low-rate to full-rate production, or beyond limited deployment of AISs or software-intensive systems with no developmental hardware, shall require completion of IOT&E and receipt of the “Beyond LRIP Report” (or equivalent report for MDAPs that are also AISs) by, and submission (where applicable) of the LFT&E Report to, the congressional defense committees, the Secretary of Defense, and the USD(AT&L).

(b) If a decision is made to proceed to operational use or to make procurement funds available for the program prior to a final decision to proceed beyond low-rate initial production (or limited deployment for MDAPs that are AISs), the DOT&E shall submit to the Secretary of Defense, the USD(AT&L), and the congressional defense committees the report required by paragraph (b)(2) of section 2399 of Reference (k) with respect to the program as soon as practicable after the decision. The DOT&E may decide to submit an interim or partial report if the operational testing completed to date is inadequate to determine operational effectiveness and suitability and survivability. If an interim or partial report is submitted, the DOT&E will prepare and submit the required final report as soon as possible after completing adequate operational testing to determine operational effectiveness and suitability and survivability.

(3) Full-Rate Production and Deployment. Continuation into full-rate production results from a successful Full-Rate Production (or Full Deployment) Decision Review by the MDA. The decision to proceed into Full-Rate Production will be documented in an ADM. This effort delivers the fully funded quantity of systems and supporting materiel and services for the program or increment to the users. During this effort, units will typically attain Initial Operational Capability (IOC). As technology, software, and threats change, FOT&E shall be considered to assess current mission performance and inform operational users during the development of new capability requirements. The tables at Enclosure 4 identify the statutory and regulatory requirements associated with this decision.

(4) Military Equipment Valuation. For Milestone C, the PM shall prepare a program description as part of the Acquisition Strategy. Throughout Production and Deployment, the PM or the life-cycle manager shall ensure that all deliverable equipment requiring capitalization is serially identified and valued at full cost; the full cost of each item of equipment is entered in the Item Unique Identification (IUID) registry; all solicitations, proposals, contracts, and/or orders for deliverable equipment are structured for proper segregation of each type of equipment based on its respective financial treatment; procedures are established to track all equipment items throughout their life cycle; and the status of items added, retired from operational use, or

transferred from one DoD Component to another DoD Component are updated quarterly throughout their life. Definitions and references for these terms are included in Reference (f).

8. OPERATIONS AND SUPPORT PHASE

a. Purpose. The purpose of the Operations and Support Phase is to execute a support program that meets materiel readiness and operational support performance requirements, and sustains the system in the most cost-effective manner over its total life cycle. Planning for this phase shall begin prior to program initiation and shall be documented in the LCSP. Operations and Support has two major efforts, Life-Cycle Sustainment and Disposal.

b. Entrance Criteria. Entrance into the Operations and Support Phase depends on meeting the following criteria: an approved CPD; an approved LCSP; and a successful Full-Rate Production (FRP) Decision.

c. Phase Description

(1) Life-Cycle Sustainment. Life-cycle sustainment planning and execution seamlessly span a system's entire life cycle, from Materiel Solution Analysis to disposal. It translates force provider capability and performance requirements into tailored product support to achieve specified and evolving life-cycle product support availability, reliability, and affordability parameters.

(a) Life-cycle sustainment planning shall be considered during Materiel Solution Analysis, and shall mature throughout Technology Development. An LCSP shall be prepared for Milestone B. The planning shall be flexible and performance-oriented, reflect an evolutionary approach, and accommodate modifications, upgrades, and reprocurement. The LCSP shall be a part of the program's Acquisition Strategy and integrated with other key program planning documents. The LCSP shall be updated and executed during Production and Deployment and Operations and Support.

(b) Life-cycle sustainment considerations include supply; maintenance; transportation; sustaining engineering; data management; configuration management; HSI; environment, safety (including explosives safety), and occupational health; protection of critical program information and anti-tamper provisions; supportability; and interoperability.

(c) Effective sustainment of systems results from the design and development of reliable and maintainable systems through the continuous application of a robust systems engineering methodology. Accordingly, the PM shall:

1. Design the maintenance program to minimize total life-cycle cost while achieving readiness and sustainability objectives (DoD Directive 4151.18 (Reference (s))). Maintenance program management shall begin at program initiation.

2. Optimize operational readiness via:

a. Human-factors engineering to design systems that require minimal manpower; provide effective training; can be operated and maintained by users; and are suitable (habitable and safe with minimal environmental and occupational health hazards) and survivable (for both the crew and equipment).

b. Diagnostics, prognostics, and health management techniques in embedded and off-equipment applications when feasible and cost-effective (Reference (o));

c. Embedded training and testing, with a preference for approved DoD Automatic Test Systems (ATS) Families to satisfy ATS requirements;

d. Serialized item management techniques and the use of automatic identification technology (AIT), radio-frequency identification, and iterative technology refreshment. PMs shall ensure that data syntax and semantics for high-capacity AIT devices conform to International Organization for Standardization ISO 15418 and ISO 15434 (References (t) and (u)).

(d) The PM shall work with the user to document performance and sustainment requirements in performance agreements specifying objective outcomes, measures, resource commitments, and stakeholder responsibilities. The PM shall employ effective Performance-Based Life-Cycle Product Support (PBL) planning, development, implementation, and management. Performance-Based Life-Cycle Product Support represents the latest evolution of Performance-Based Logistics. Both can be referred to as "PBL." PBL offers the best strategic approach for delivering required life cycle readiness, reliability, and ownership costs. Sources of support may be organic, commercial, or a combination, with the primary focus optimizing customer support, weapon system availability, and reduced ownership costs. The DoD Components shall document sustainment procedures that ensure integrated combat support.

(e) DoD Components shall initiate system modifications, as necessary, to improve performance and reduce ownership costs, as constrained by section 2244a of Reference (k).

(f) The DoD Components, in conjunction with users, shall conduct continuing reviews of sustainment strategies comparing performance expectation, as defined in performance agreements, to actual performance results. PMs shall continuously identify deficiencies in these strategies, and adjust the LCSP as necessary to meet performance requirements.

(2) Disposal. At the end of its useful life, a system shall be demilitarized and disposed of in accordance with all legal and regulatory requirements and policy relating to safety (including explosives safety), security, and the environment. During the design process, PMs shall document hazardous materials contained in the system in the Programmatic Environment, Safety, and Occupational Health Evaluation (PESHE) (see Section 6 in Enclosure 12), and shall estimate and plan for the system's demilitarization and safe disposal. The demilitarization of conventional ammunition (including any item containing propellants, explosives, or pyrotechnics) shall be considered during system design.

9. REVIEW PROCEDURES

a. Review of ACAT ID and IAM Programs. The USD(AT&L) shall designate programs as ACAT ID or ACAT IAM (see Enclosure 3) 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 lead to an ACAT ID or IAM designation.

b. 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. An ADM shall document the decision(s) resulting from the review.

c. Information Technology (IT) Acquisition Board (ITAB) Review. The ITAB shall advise the USD(AT&L) or his or her designee on critical IT acquisition decisions, excluding defense business systems. These reviews shall facilitate the accomplishment of the DoD CIO's acquisition-related responsibilities for IT, including NSS, in accordance with subtitle III of title 40, U.S.C. (Reference (v)) and section 2223 of Reference (k). An ADM shall document the decision(s) resulting from the review.

d. Configuration Steering Boards (CSB). The Acquisition Executive of each DoD Component shall establish and chair a CSB with broad executive membership including senior representatives from the Office of the USD(AT&L) and the Joint Staff. Additional executive members shall include representatives from the office of the chief of staff of the Armed Force concerned, other Armed Forces representatives where appropriate, the military deputy to the CAE and the Program Executive Officer (PEO) (section 814 of P.L. 110-417, Reference (w)).

(1) The CSB shall meet at least annually to review all requirements changes and any significant technical configuration changes for ACAT I and IA programs in development that have the potential to result in cost and schedule impacts to the program. Such changes will generally be rejected, deferring them to future blocks or increments. Changes shall not be approved unless funds are identified and schedule impacts mitigated.

(2) The PM, in consultation with the PEO, shall, on a roughly annual basis, identify and propose a set of descoping options, with supporting rationale addressing operational implications, to the CSB that reduce program cost or moderate requirements. The CSB shall recommend to the MDA (if an ACAT ID or IAM program) which of these options should be implemented. Final decisions on descoping option implementation shall be coordinated with the Joint Staff and military department requirements officials.

e. Overarching Integrated Product Team (OIPT). An OIPT shall review program planning, facilitate program communications and issue resolution, and support the MDA for ACAT ID and IAM programs. The Investment Review Board (IRB) shall perform this function for MAIS business systems.

f. Program Support Reviews (PSRs). PSRs are a means to inform an MDA and Program Office of the status of technical planning and management processes by identifying cost, schedule, and performance risk and recommendations to mitigate those risks. PSRs shall be conducted by cross-functional and cross-organizational teams appropriate to the program and situation. PSRs for ACAT ID and IAM programs shall be planned by the Director, Systems and Software Engineering (SSE) to support OIPT program reviews, at other times as directed by the USD(AT&L), and in response to requests from PMs.

g. Independent Management Reviews (“Peer Reviews”). Peer Reviews shall be conducted on all Supplies and Services contracts. The reviews shall be advisory in nature and conducted in a manner which preserves the authority, judgment, and discretion of the contracting officer and senior officials of the acquiring organization. Pre-Award reviews shall be conducted on Supplies and Services contracts; Post-Award reviews shall be conducted on Services contracts. The Director, Defense Procurement, Acquisition Policy, and Strategic Sourcing (DPAP), in the Office of the USD(AT&L), shall conduct Peer Reviews for contracts with an estimated value of \$1 billion or more (including options). DoD Components shall establish procedures for contracts valued at less than \$1 billion. Section 6 of Enclosure 9 of this issuance describes the procedures for Peer Reviews of Services; the Pre-Award procedures in paragraph 6.a. of Enclosure 9 shall also apply to Peer Reviews of Supplies.

ENCLOSURE 3

ACQUISITION CATEGORY (ACAT) AND
MILESTONE DECISION AUTHORITY (MDA)

1. GENERAL

a. A technology project or acquisition program shall be categorized based on its location in the acquisition process, dollar value, and MDA special interest. Table 1 contains the description and decision authority for ACAT I through III programs. When the ICD demonstrates a need for a materiel solution, the DoD Component sponsor shall assess the potential level of investment and plan a Materiel Development Decision review with the appropriate decision authority. The Defense Acquisition Executive (DAE) or designee shall review potential ACAT I and IA materiel solutions; the CAE or the individual designated by the CAE shall review potential ACAT II and III materiel solutions.

b. The DoD Component shall notify the USD(AT&L) when an increase in program cost 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 DoD Component anticipates that the program is within 10 percent of the next ACAT level. ACAT-level reclassification shall occur upon designation by the USD(AT&L).

(1) The CAE may request a reclassification of an ACAT I or IA program to a lower ACAT, consistent with Table 1. 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 the ASD(NII)/DoD CIO when designated by the USD(AT&L).

(2) The USD(AT&L) may reclassify an acquisition program at any time.

2. TECHNOLOGY PROJECTS. Joint Experimentation, Defense Advanced Research Projects Agency projects, the Technology Transition Incentive Program, SBIR and Small Business Technology Transfer Programs, the Joint Integration & Interoperability Program, Joint Capability Technology Demonstrations, the Coalition Warfare Program, the Quick Reaction Special Projects/Rapid Reaction Fund, Foreign Comparative Testing, the Defense Acquisition Challenge Program, the Joint Test & Evaluation Program, the Joint Improvised Explosive Devices Defeat Office, the Rapid Reaction Technologies Office, and Defense Biometrics are some of the activities that facilitate and provide early joint technology and capability definition, development, experimentation, refinement, testing, and transition. The USD(AT&L) shall be the MDA for those projects that, if successful, will likely result in an MDAP or MAIS program unless the USD(AT&L) delegates milestone decision authority for a MAIS program.

Table 1. Description and Decision Authority for ACAT I – III Programs.

Acquisition Category	Reason for ACAT Designation	Decision Authority
ACAT I	<ul style="list-style-type: none"> • MDAP (section 2430 of Reference (k)) <ul style="list-style-type: none"> ○ Dollar value: estimated by the USD(AT&L) to require an eventual total expenditure for research, development, test and evaluation (RDT&E) 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 ○ MDA designation • MDA designation as special interest 	ACAT ID: USD(AT&L) ACAT IC: Head of the DoD Component or, if delegated, the CAE (not further delegable)
ACAT IA ^{1,2}	<ul style="list-style-type: none"> • MAIS (Chapter 144A of Reference (k)): A DoD acquisition program for an Automated Information System³ (either as a product or a service) that is either: <ul style="list-style-type: none"> ○ Designated by the MDA as a MAIS; or ○ Estimated to exceed: <ul style="list-style-type: none"> ▪ \$32 million in FY 2000 constant dollars for all expenditures, for all increments, regardless of the appropriation or fund source, directly related to the AIS definition, design, development, and deployment, and incurred in any single fiscal year; or ▪ \$126 million in FY 2000 constant dollars for all expenditures, for all increments, regardless of the appropriation or fund source, directly related to the AIS definition, design, development, and deployment, and incurred from the beginning of the Materiel Solution Analysis Phase through deployment at all sites; or ▪ \$378 million in FY 2000 constant dollars for all expenditures, for all increments, regardless of the appropriation or fund source, directly related to the AIS definition, design, development, deployment, operations and maintenance, and incurred from the beginning of the Materiel Solution Analysis Phase through sustainment for the estimated useful life of the system. • MDA designation as special interest 	ACAT IAM: USD(AT&L) or designee ACAT IAC: Head of the DoD Component or, if delegated, the CAE (not further delegable)
ACAT II	<ul style="list-style-type: none"> • Does not meet criteria for ACAT I • Major system <ul style="list-style-type: none"> ○ Dollar value: 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 (section 2302d of Reference (k)) ○ MDA designation⁴ (paragraph (5) of section 2302 of Reference (k)) 	CAE or the individual designated by the CAE ⁴
ACAT III	<ul style="list-style-type: none"> • Does not meet criteria for ACAT II or above • AIS that is not a MAIS 	Designated by the CAE ⁴
<p>1. In some cases, an ACAT IA program, as defined above, also meets the definition of an MDAP. The USD(AT&L) shall be the MDA for such programs unless delegated to a DoD Component. The statutory requirements that apply to MDAPs and MAIS shall apply to such programs.</p> <p>2. The MDA (either the USD(AT&L) or, if delegated, the ASD(NII)/DoD CIO or another designee) shall designate MAIS programs as ACAT IAM or ACAT IAC. MAIS programs shall not be designated as ACAT II.</p> <p>3. Automated Information System: A system of computer hardware, computer software, data or telecommunications that performs functions such as collecting, processing, storing, transmitting, and displaying information. Excluded are computer resources, both hardware and software, that are:</p> <ol style="list-style-type: none"> a. an integral part of a weapon or weapon system; b. used for highly sensitive classified programs (as determined by the Secretary of Defense); c. used for other highly sensitive information technology programs (as determined by the ASD(NII)/DoD CIO); or d. determined by the USD(AT&L) or designee to be better overseen as a non-AIS program (e.g., a program with a low ratio of RDT&E funding to total program acquisition costs or that requires significant hardware development). <p>4. As delegated by the Secretary of Defense or Secretary of the Military Department.</p>		

ENCLOSURE 4STATUTORY AND REGULATORY INFORMATION
AND MILESTONE REQUIREMENTS

1. Tables 2-1, 2-2, 3, 4, and 5 show the information requirements for all milestones and phases, both statutory and regulatory. MDAs may tailor regulatory program information to fit the particular conditions of an individual program. Decisions to tailor regulatory information requirements shall be documented by the MDA. The non-mandatory Defense Acquisition Guidebook (Reference (f)) supports this Instruction to provide best practices, lessons learned, and expectations for the information required by these tables. Issues regarding the intent of the expectations described in the guidebook shall be resolved by the MDA. The Acquisition Knowledge Sharing System (Reference (x)) contains a library of mandatory policy and regulations and discretionary practices and advice.

2. The following tables and sections indicate applicability of requirements by program type.

Table 2-1. Statutory Requirements Applicable to MDAPs and
MAIS Acquisition Programs (unless otherwise noted).

INFORMATION REQUIRED	APPLICABLE STATUTE	WHEN REQUIRED
The following requirements are statutory for both MDAPs and MAIS acquisition programs		
AoA	Subtitle III of Reference (v) Section 2366a of Reference ((k))	Milestone (MS) A Program Initiation for Ships MS B (updated as necessary) MS C (updated as necessary)
Benefit Analysis and Determination (applicable to bundled acquisitions only)) (part of Acquisition Strategy)	Paragraph (e) of Section 644 of title 15, U.S.C. (Reference (y))	MS B MS C (if no MS B)
Clinger-Cohen Act (CCA) Compliance (All IT—including NSS) (See Enclosure 5)	Subtitle III of Reference (v)	MS A Program Initiation for Ships MS B MS C Full-Rate Production (or Full Deployment) Decision Review (DR) (or equivalent)
Competition Analysis (Depot-level Maintenance \$3M rule) (part of Acquisition Strategy)	Section 2469 of Reference (k)	MS B MS C (if no MS B)
Cooperative Opportunities (part of TDS at MS A; part of Acquisition Strategy thereafter)	Paragraph (e) of Section 2350a of Reference (k)	MS A MS B MS C
Consideration of Technology Issues	Paragraph (b)(5) of Section 2364 of Reference (k)	MS A MS B MS C
Core Logistics Analysis/Source of Repair Analysis ¹ (part of Acquisition Strategy)	Section 2464 of Reference (k) Section 2466 of Reference (k)	MS B MS C (if no MS B)

Data Management Strategy (part of TDS or Acquisition Strategy)	Section 2320 of Reference (k)	MS A MS B MS C Full-Rate Production DR (or equivalent)
Market Research	Section 2377 of Reference (k) Paragraph (e)(2) of Section 644 of Reference (y)	During User Needs and Technology Opportunities MS A MS B
Military Equipment Valuation (part of Acquisition Strategy)	P.L. 101-576 (Reference (z)) SFFAS 6 (Reference (aa))	MS C Full-Rate Production DR (or equivalent)
Post Implementation Review	Paragraph (a)(5) of Section 1115 of title 31, U.S.C. (Reference (ab)) Section 11313 of Reference (v)	Full-Rate Production DR (or Full Deployment DR)
Program Deviation Report	MDAP–Section 2435 of Reference (k) MAIS–Section 11317 of Reference (v)	Immediately upon a program deviation
PESHE (Including National Environmental Policy Act (NEPA) / (Executive Order) E.O. 12114 Compliance Schedule)	Sections 4321-4347 of title 42, U.S.C. (Reference (ac)) E.O. 12114 (Reference (ad))	Program Initiation for Ships MS B MS C Full-Rate Production DR (or Full Deployment DR)
Submission of a DD Form 1494 and Certification of Spectrum Support (applicable to all systems/equipment that use the electromagnetic spectrum while operating in the U.S. and its possessions)	Sections 305 and 901-904 of title 47, U.S.C. (Reference (ae)) Section 104 of P.L. 102-538 (Reference (af)) Part 2 of Reference (c)	MS A MS B MS C
The following requirements are statutory for MDAPs		
Alternate LFT&E Plan (OSD LFT&E oversight programs with waiver from full-up, system-level testing only)	Section 2366 of Reference (k)	MS B (or as soon as practicable after program initiation)
Beyond-LRIP Report (or equivalent report for MDAPs that are also MAIS) (OSD OT&E oversight programs only)	Section 2399(b) of Reference (k)	Full-Rate Production DR
ICE ²	Section 2434 of Reference (k)	MS A (Cost assessment when requested by the MDA) Program Initiation for Ships (cost assessment only) MS B MS C Full-Rate Production DR (as requested/directed by the MDA)
Industrial Base Capabilities Considerations (part of Acquisition Strategy)	Section 2440 of Reference (k)	MS B MS C
LFT&E Report (OSD LFT&E oversight programs only)	Section 2366 of Reference (k)	Full-Rate Production DR
LFT&E Waiver from Full-up, System-level Testing (OSD LFT&E oversight programs only)	Section 2366 of Reference (k)	MS B (or as soon as practicable after program initiation)
LRIP Quantities	Section 2400 of Reference (k)	MS B
Manpower Estimate (reviewed by the office of the Under Secretary of Defense for Personnel and Readiness (USD(P&R)))	Section 2434 of Reference (k)	Program Initiation for Ships MS B MS C Full-Rate Production DR

MDA Program Certification	Section 2366a of Reference (k) Section 2366b of Reference (k) This Instruction	MS A MS B MS C (if Program Initiation)
Nunn-McCurdy Assessment and Certification	Section 2433 of Reference (k)	When a Service Secretary has reported an increase in cost that equals or exceeds the critical cost growth threshold
Replaced System Sustainment Plan	Section 2437 of Reference (k)	Program Initiation for Ships MS B
Selected Acquisition Report (SAR)– (This SAR requirement is not applicable to MDAPs that are also MAIS acquisition programs that report under section 2445c of Reference (k))	Section 2432 of Reference (k) Section 2445d of Reference (k)	<ul style="list-style-type: none"> • Program initiation (normally Milestone B except for some ship programs) or MDAP designation • Annually for all programs and quarterly on an exception basis when there is (1) a six-month or more schedule slip in the current estimate since the prior SAR, or (2) a unit cost increase of 15% or more to the current APB objective or 30% or more to the original APB objective • SAR rebaselining after a major milestone decision (i.e., Milestone C or Milestones B and C for some ship programs) • SAR reporting requirement ceases after 90% of items are delivered or 90% of funds are expended
Unit Cost Report	Section 2433 of Reference (k)	Quarterly
The following requirements are statutory for MDAPs and are applicable to MAIS acquisition programs by this Instruction		
APB	Section 2435 of Reference (k)	Program Initiation for Ships MS B MS C (updated, as necessary) Full-Rate Production DR (or Full Deployment DR)
Operational Test Plan (OSD OT&E oversight programs only)	Section 2399 of Reference (k)	Prior to start of operational test and evaluation
TDS	Section 803 of Reference (g)	MS A
The following requirements are statutory for MAIS acquisition programs		
Assessment and Certification of a Critical Change to the Defense Committees ³	Section 2445c of Reference (k) This Instruction	Not later than 60 days after receiving a MAIS Quarterly Report indicating a Critical Change ^{4/5}
Defense Business Systems Management Committee (DBSMC) certification approval for defense business system modernizations	Section 2222 of Reference (k)	Prior to obligation of funds on defense business system modernizations
DoD CIO Confirmation of CCA Compliance (See Enclosure 5)	Section 811 of P.L. 106-398 (Reference (ag)) This Instruction	MS A MS B MS C (if Program Initiation or if equivalent to Full Deployment DR) Full Deployment DR
Economic Analysis	Section 811 of Reference (ag)	MS A (may be combined with AoA) MS B (or equivalent) Full Deployment DR (or equivalent)

MAIS Annual Report to Congress	Section 2445b of Reference (k)	<ul style="list-style-type: none"> ▪ Annually after the first occurrence of any of the following events: <ul style="list-style-type: none"> - MDA designation, - MS A, or - MS B ▪ Due 45 days after the President's Budget is submitted to Congress
Notice of MAIS Cancellation or Significant Reduction in Scope	Section 806 of P.L. 109-163 (Reference (ah))	60 days prior to an MDA decision to cancel or significantly reduce the scope of a fielded or post-MS C MAIS program
Notification of a Significant Change to the Defense Committees ³	Section 2445c of Reference (k) This Instruction	Not later than 45 days after receiving a MAIS Quarterly Report indicating a Significant Change ^{4/5}
MAIS Quarterly Report ⁶	Section 2445c of Reference (k)	Quarterly following initial submission of a MAIS Annual Report

Notes:

1. Core Logistics Analysis/Source of Repair Analysis shall be addressed in the LCSP.
2. For ACAT ID programs, the OSD CAIG prepares the ICE. For ACAT IC programs, the appropriate Service Cost Center or Defense Agency equivalent prepares the ICE.
3. Service Acquisition Executives (SAEs) shall obtain the ASD(NII)/DoD CIO's coordination on Significant and Critical Change reports before submitting them to the congressional defense committees when (a) the ASD(NII)/DoD CIO is the MDA for the program, or (b) the MAIS is an ACAT IAC program that is not under the direct authority of the USD(AT&L). SAEs shall obtain the USD(AT&L)'s coordination on Significant and Critical Change reports before submitting them to the congressional defense committees when the MAIS is under the direct authority of the USD(AT&L).
4. Section 2445c of Reference (k) defines a Significant Change as either a schedule change that will cause a delay of more than 6 months but less than a year; an increase in the estimated development cost or full life-cycle cost for the program of at least 15 percent, but less than 25 percent; or a significant, adverse change in the expected performance of the MAIS to be acquired. A Critical Change occurs when the system has failed to achieve IOC within 5 years after funds were first obligated for the program⁷; a schedule change will cause a delay of 1 year or more; the estimated development cost or full life-cycle cost for the program has increased 25 percent or more; or a change in expected performance will undermine the ability of the system to perform the functions anticipated.
5. Although the 45 days for submitting a Significant Change notification and the 60 days for conducting and submitting a Critical Change assessment and certification start from the day the Senior Official receives the MAIS Quarterly Report, no submission to the congressional defense committees is required unless the Senior Official determines that such a change has occurred based on the MAIS Quarterly Report.
6. This written report shall identify any variance in the projected development schedule, implementation schedule, life-cycle costs, or key performance parameters for the MAIS from such information as originally submitted in the first MAIS Annual Report to Congress for this program.
7. For MAIS programs that submitted a MAIS Annual Report to Congress in 2008, the Critical Change criterion to achieve IOC within 5 years has already been established in accordance with the then-applicable law.

**Table 2-2. Statutory Requirements Applicable to
ACAT II and Below Acquisition Programs (unless otherwise noted).**

INFORMATION REQUIRED	APPLICABLE STATUTE	WHEN REQUIRED
AoA (All Information Systems –including NSS)	Subtitle III of Reference (v)	MS A MS B (updated as necessary) MS C (updated as necessary)
Alternate LFT&E Plan (OSD LFT&E oversight programs with waiver from full-up, system-level testing only)	Section 2366 of Reference (k)	MS B (or as soon as practicable after program initiation)
Benefit Analysis and Determination (applicable to bundled acquisitions only) (part of Acquisition Strategy)	Paragraph (e) of Section 644 of Reference (y)	MS B MS C (if no MS B)
CCA Compliance (All IT–including NSS) (See Enclosure 5)	Subtitle III of Reference (v)	MS A Program Initiation for Ships MS B MS C Full-Rate Production (or Full Deployment DR) (or equivalent)
Cooperative Opportunities (part of TDS at MS A; part of Acquisition Strategy thereafter)	Paragraph (e) of Section 2350a of Reference (k)	MS A MS B MS C
Competition Analysis (Depot-level Maintenance \$3M rule) (part of Acquisition Strategy)	Section 2469 of Reference (k)	MS B MS C (if no MS B)
Consideration of Technology Issues (ACAT II only)	Paragraph (b)(5) of Section 2364 of Reference (k)	MS A MS B MS C
Core Logistics Analysis/Source of Repair Analysis (part of Acquisition Strategy)	Section 2464 of Reference (k) Section 2466 of Reference (k)	MS B MS C (if no MS B)
Data Management Strategy (ACAT II only; part of Acquisition Strategy)	Section 2320 of Reference (k)	MS B MS C Full-Rate Production DR (or equivalent)
DBSMC certification approval for defense business system modernizations in excess of \$1M	Section 2222 of Reference (k)	Prior to obligation of funds on defense business system modernizations
IOT&E Completed (only conventional weapons systems that are major systems under section 2302(5) of Reference (k) for use in combat)	Paragraph (a) of Section 2399 of Reference (k)	Full-Rate Production
LFT&E Report (OSD LFT&E oversight programs only)	Section 2366 of Reference (k)	Full-Rate Production DR
LFT&E Waiver from Full-up, System-level Testing (OSD LFT&E oversight programs only)	Section 2366 of Reference (k)	MS B (or as soon as practicable after program initiation)
LRIP Quantities (ACAT II only)	Section 2400 of Reference (k)	MS B
Market Research	Section 2377 of Reference (k) Paragraph (e)(2) of Section 644 of Reference (y)	During User Needs and Technology Opportunities MS A MS B
Military Equipment Valuation (part of Acquisition Strategy)	Reference (z) Reference (aa)	MS C Full-Rate Production DR (or equivalent)
Operational Test Plan (OSD OT&E oversight programs only)	Section 2399 of Reference (k)	Prior to start of operational test and evaluation

Post Implementation Review	Section 1115(a)(5) of Reference (ab) Section 11313 of Reference (v)	Full-Rate Production DR (or Full Deployment DR)
PESHE (Including NEPA/E.O. 12114 Compliance Schedule)	Sections 4321-4347 of Reference (ac) Reference (ad)	Program Initiation for Ships MS B MS C Full-Rate Production DR (or Full Deployment DR)
Submission of a DD Form 1494 and Certification of Spectrum Support (applicable to all systems/equipment that use the electromagnetic spectrum while operating in the U.S. and its possessions)	Sections 305 and 901-904 of Reference (ae) Section 104 of Reference (af) Part 2 of Reference (c)	MS A MS B MS C

**Table 3. Regulatory Requirements Applicable to All Acquisition Programs
(unless otherwise noted).**

Regulatory policy applicable to Acquisitions of Services is discussed in Enclosure 9. Information requirements stated in this table do not apply to these acquisitions unless specifically addressed in Enclosure 9.

INFORMATION REQUIRED	SOURCE	WHEN REQUIRED
Acquisition Information Assurance Strategy (All IT—including NSS)	DoDI 8580.1 (Reference (ai)) This Instruction	MS A MS B MS C Full-Rate Production DR (or Full Deployment DR)
Acquisition Strategy	This Instruction	Program Initiation for Ships MS B MS C Full-Rate Production DR (or Full Deployment DR)
ADM	This Instruction	Program Initiation for Ships MS A MS B MS C Each Review
Affordability Assessment	This Instruction	MS B MS C
AoA	This Instruction	MS A MS B (updated as necessary) MS C (updated as necessary) Full Deployment DR (for AIS)
AoA Study Guidance	This Instruction	Materiel Development Decision (updated as necessary)
AoA Study Plan	This Instruction	Immediately following the Materiel Development Decision consistent with MDA Direction (updated as necessary)
APB	This Instruction	Program Initiation for Ships MS B MS C (updated, as necessary) Full-Rate Production DR (or Full Deployment DR)
CDD	Reference (h)	Program Initiation for Ships MS B
CIO Confirmation of CCA Compliance (See Enclosure 5)	This Instruction	MS A Program Initiation for Ships MS B MS C (if Program Initiation or if equivalent to Full Deployment DR) Full-Rate Production (or Full Deployment) DR
Component LFT&E Report (OSD LFT&E oversight programs only)	This Instruction	Completion of Live Fire Test and Evaluation

Cost Analysis Requirements Description (CARD) (MDAPs and MAIS acquisition programs only) (CARDS shall be prepared according to the procedures specified in Enclosure 7 of this Instruction)	This Instruction	For MDAPs - Program Initiation for Ships - MS B - MS C - Full-Rate Production DR For MAIS - Any time an Economic Analysis is required—either by statute or by the MDA
Corrosion Prevention Control Plan (part of Acquisition Strategy) (ACAT I only)	DoDI 5000.67 (Reference (aj)) This Instruction	MS B MS C
CPD	Reference (h)	MS C
Defense Acquisition Executive Summary (MDAPs and MAIS only)	This Instruction	Quarterly Upon POM or BES submission Upon unit cost breach
DoD Component Cost Estimate (mandatory for MAIS; as required by CAE for MDAP)	This Instruction	MS A For MDAPs - Program Initiation for Ships - MS B - Full-Rate Production DR For MAIS - Any time an Economic Analysis is required—either by statute or by the MDA
Exit Criteria	This Instruction	Program Initiation for Ships MS A MS B MS C Each Review
ICD	Reference (h)	Materiel Development Decision MS A MS B MS C (if Program Initiation)
Independent Technology Readiness Assessment (ACAT ID only) (if required by the office of the Director, Defense Research and Engineering)	This Instruction	MS B MS C
Information Support Plan (ISP) (All IT—including NSS)	DoD Directive 4630.05 (Reference (ak)) DoD Instruction 4630.8 (Reference (al))	Program Initiation for Ships (Initial ISP) MS B (Initial ISP) CDR (Revised ISP) (unless waived) MS C (ISP of Record)
IT and NSS Joint Interoperability Test Certification (All IT—including NSS)	Chairman of the Joint Chiefs of Staff Manual 3170.01 (Reference (am)) CJCSI 6212.01 (Reference (an)) Reference (ak)	Full-Rate Production DR (or Full Deployment DR)
IUID Implementation Plan	DoD Instruction 8320.04 (Reference (ao))	MS A (summarized in SEP) MS B (annex to SEP) MS C (annex to SEP)
LCSP (part of Acquisition Strategy)	This Instruction	MS B MS C Full-Rate Production DR
Life-Cycle Signature Support Plan	DoD Directive 5250.01 (Reference (ap))	MS A (summarized in TDS) Program Initiation for Ships MS B MS C (updated as necessary)

Net-Centric Data Strategy (Approach summarized in TDS and detailed in ISP)	Reference (l)	MS A Program Initiation for Ships MS B MS C
Operational Test Agency Report of Operational Test and Evaluation Results	This Instruction	MS B MS C Full-Rate Production DR
PDR Report	This Instruction	MS B Post-PDR Assessment if PDR is conducted after MS B
Post-CDR Report	This Instruction	Post-CDR Assessment
Program Deviation Report	This Instruction	Immediately upon a program deviation
Program Protection Plan (PPP) (for programs with critical program information) (includes Anti-Tamper Annex) (also summarized in the Acquisition Strategy)	Reference (m)	MS A (CPI stated in TDS) MS B MS C
Spectrum Supportability Determination (applicable to all systems/equipment that use the electromagnetic spectrum in the U.S. and in other host nations)	DoD Directive 4650.1, Reference (aq)	MS B MS C
System Threat Assessment Report (STAR) - validated by Defense Intelligence Agency (DIA) for ACAT ID programs - validated by DoD Components for ACAT IC programs - Programs on the DOT&E Oversight List require a STAR regardless of ACAT designation (MAIS programs use the DIA validated Information Operations Capstone Threat Assessment)	This Instruction DoD Directive 5105.21 (Reference (ar)) Reference (q) DIA Instruction 5000.002 (Reference (as))	Program Initiation for Ships MS B MS C
System Threat Assessment (STA) - validated by DoD Components for ACAT II programs (AIS programs may use the DIA validated Information Operations Capstone Threat Assessment)	This Instruction Reference (ar) Reference (q) Reference (as)	MS B MS C
Systems Engineering Plan	This Instruction	MS A MS B MS C
TDS (ACAT II and below)	This Instruction	MS A
Technology Readiness Assessment	This Instruction	Program Initiation for Ships (preliminary assessment) MS B MS C
TEMP	This Instruction	MS B MS C (update, if necessary) Full-Rate Production DR (or Full Deployment DR)
TES	This Instruction	MS A

Table 4. Regulatory Contract Reporting Requirements.

REQUIRED REPORT	SOURCE	WHEN REQUIRED
Contractor Cost Data Report (CCDR)	DoD 5000.04-M-1 (Reference (at)) This Instruction	<ul style="list-style-type: none"> • All major contracts¹ and subcontracts, regardless of contract type, for ACAT I and IA programs and pre-MDAP and pre-MAIS programs subsequent to Milestone A approval, valued at more than \$50² million (then-year dollars) • Not required for contracts priced below \$20 million (then-year dollars) • The CCDR requirement on high-risk or high-technical-interest contracts priced between \$20 and \$50 million is left to the discretion of the DoD PM with approval by the Chair, CAIG • Not required under the following conditions provided the DoD PM requests and obtains approval for a reporting waiver from the Chair, CAIG: 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.
Software Resources Data Report (SRDR)	Reference (at) This Instruction	<ul style="list-style-type: none"> • All major contracts and subcontracts, regardless of contract type, for contractors developing/producing software elements within ACAT I and IA programs and pre-MDAP and pre-MAIS programs subsequent to Milestone A approval for any software development element with a projected software effort greater than \$20M (then-year dollars). • The SRDR requirement on high-risk or high-technical-interest contracts priced below \$20 million is left to the discretion of the DoD PM with approval by the Chair, CAIG.
<p>Notes:</p> <p>1. For CSDR purposes, the term “contract” (or “subcontract”) may refer to the entire standalone contract, to a specific task/delivery order, to a series of task/delivery orders, to a contract line item number, or to a series of line item numbers within a contract. The intent is to capture data on contractual efforts necessary for cost estimating purposes irrespective of the particular contract vehicle used.</p> <p>2. For CSDR purposes, contract value shall represent the estimated price at contract completion (i.e., initial contract award plus all expected authorized contract changes) and be based on the assumption that all contract options shall be exercised.</p>		

3. Table 5 contains Earned Value Management (EVM) implementation policy. Reference (f) and the DoD Earned Value Management Implementation Guide (Reference (au)) contain supporting information.

Table 5. EVM Implementation Policy.

REQUIREMENTS	SOURCE	WHEN REQUIRED
For Cost/Incentive Contracts¹ ≥ \$50 Million² <ul style="list-style-type: none"> • Compliance with EVM system guidelines in ANSI/EIA-748³ • EVM system formally validated and accepted by cognizant contracting officer • Contract Performance Report (DI-MGMT-81466A) • Integrated Master Schedule (DI-MGMT-81650) • Integrated Baseline Reviews 	Part 7 of Reference (c) This Instruction	At contract award and throughout contract performance At contract award and throughout contract performance Monthly Monthly Within 180 days after contract award, exercise of options, and major modifications
For Cost/Incentive Contracts¹ ≥ \$20 Million² but < \$50 Million² <ul style="list-style-type: none"> • Compliance with EVM system guidelines in ANSI/EIA-748³ (no formal EVM system validation) • Contract Performance Report (DI-MGMT-81466A) (tailoring recommended) • Integrated Master Schedule (DI-MGMT-81650) (tailoring recommended) • Integrated Baseline Reviews 	Part 7 of Reference (c) This Instruction	At contract award and throughout contract performance Monthly Monthly Within 180 days after contract award, exercise of options, and major modifications
For Cost/Incentive Contracts¹ < \$20 Million²	Part 7 of Reference (c) This Instruction	At the discretion of the PM based on cost-benefit analysis
For Firm Fixed-Price Contracts¹ regardless of dollar value	Part 7 of Reference (c) This Instruction	Limited Use—must be approved by the MDA based on a business case analysis
Notes: 1. The term, “Contracts,” includes contracts, subcontracts, intra-government work agreements, and other agreements. “Incentive” contracts include fixed-price incentive. 2. Application thresholds are in then-year dollars. 3. ANSI/EIA-748 = American National Standards Institute/Electronic Industries Alliance Standard 748, Earned Value Management Systems (Reference (av)).		

4. The APB is an important document for program management and shall reflect the approved program being executed. It is the “Baseline Description” of the program and shall include sufficient parameters to describe the cost estimate (also referred to as the “Baseline Estimate” for MDAPs in section 2433 of Reference (k)), schedule, performance, supportability, and other relevant factors. An APB is required for all programs by paragraph 4.3.4 in Reference (b) and Table 2-1 of this Instruction. For MDAPs, sections 2433 and 2435 of Reference (k) provide specific requirements for unit cost reports and baseline descriptions. Table 6 contains statutory and regulatory APB policy.

Table 6. APB Policy.

Original Baseline Description or Original APB	<ul style="list-style-type: none"> • The first APB approved by the MDA prior to a program entering EMD, or at program initiation, whichever occurs later • Serves as the current baseline description until a revised APB is prepared • Incorporates the KPPs verbatim from the CDD or CPD (if program initiation is at MS C) • The cost estimate parameter may be revised under section 2435 of Reference (k) only if a breach occurs that exceeds the critical cost growth threshold for the program under section 2433 of Reference (k) (Applicable to MDAPs only)
Current Baseline Description or Current APB	<ul style="list-style-type: none"> • May be revised only: <ul style="list-style-type: none"> ▪ at milestone and full-rate production decisions; ▪ as result of a major program restructure that is fully funded and approved by the MDA; or ▪ as a result of a program deviation (breach), if the MDA determines that the breach is primarily the result of an external cause beyond control of the PM • Circumstances authorizing changes are limited and revision to the current baseline estimate (i.e., the cost estimate) or other APB parameters is not automatically authorized if there is a change to cost, schedule, or performance parameters • Multiple revisions to the current APB will not be authorized • In no event will a revision to the current APB be authorized if proposed merely to avoid a reportable breach • The MDA determines whether to revise the APB
Significant Nunn-McCurdy Unit Cost Breaches Applicable to MDAPs only	<ul style="list-style-type: none"> • The cost growth threshold, as it relates to the current APB, is defined in section 2433 of Reference (k) to be an increase of at least 15 percent over the Program Acquisition Unit Cost (PAUC) or Average Procurement Unit Cost (APUC) for the current program as shown in the current Baseline Estimate • The cost growth threshold, as it relates to the original APB, is defined in section 2433 of Reference (k) to be an increase of at least 30 percent over the PAUC or APUC for the original program as shown in the original Baseline Estimate • Only the current APB shall be revised
Critical Nunn-McCurdy Unit Cost Breaches Applicable to MDAPs only	<ul style="list-style-type: none"> • The cost growth threshold, as it relates to the current APB, is defined in section 2433 of Reference (k) to be an increase of at least 25 percent over the current PAUC or current APUC for the current program as shown in the current Baseline Estimate • The cost growth threshold, as it relates to the original APB, is defined in section 2433 of Reference (k) to be an increase of at least 50 percent over the original PAUC or original APUC for the original program as shown in the original Baseline Estimate • Both the current and original APBs shall be revised to form a single “new original” APB that reflects the Nunn-McCurdy certification approved by the MDA
Deviations	<ul style="list-style-type: none"> • Revising the current APB at milestone decisions and at full-rate production serves to update cost and schedule parameters based on knowledge developed during the current phase of the program • The PM shall immediately notify the MDA of a deviation from any parameter (cost, schedule, performance, etc.) • Within 30 days of occurrence of the deviation, the PM shall inform the MDA of the reason for the deviation and planned actions • Within 90 days of occurrence of the deviation <ul style="list-style-type: none"> ▪ A proposed revised APB shall be submitted for approval; or ▪ An OIPT or equivalent Component-level review shall be held to review the program • The MDA shall decide based on above criteria whether it is appropriate to approve a revision to an APB
MAIS Significant and Critical Program Changes	<ul style="list-style-type: none"> • Definitions provided in Table 2-1, Note 4

Table 7. Unique Decision Forums.

PROGRAM CATEGORY	DECISION FORUM	APPLICABLE POLICY
Space Programs	Defense Space Acquisition Board	NSSAP 03-01 (Reference (aw))
Joint Intelligence Programs	Joint Intelligence Acquisition Board	ICD 105 (Reference (ax)) Reference (d)
Missile Defense Programs	Missile Defense Executive Board	USD(AT&L) Memo, "Ballistic Missile Defense Program Implementation Guidance" (Reference (ay))

ENCLOSURE 5

IT CONSIDERATIONS

1. CLINGER-COHEN ACT (CCA) COMPLIANCE. Subtitle III of Reference (v) (formerly known as Division E of CCA) (hereinafter referred to as "Title 40/CCA") applies to all IT investments, including NSS.

a. For all programs that acquire IT, including an NSS, at any ACAT level, the MDA shall not initiate a program or an increment of a program, or approve entry into any phase of the acquisition process; and the DoD Component shall not award a contract until:

(1) The sponsoring DoD Component or PM has satisfied the requirements of Title 40/CCA;

(2) The DoD Component CIO, or designee, confirms Title 40/CCA compliance; and

(3) For MDAPs and MAIS programs only, the DoD CIO also confirms Title 40/CCA compliance.

b. The Title 40/CCA requirements identified in Table 8 of this enclosure shall be satisfied to the maximum extent practicable through documentation developed under the JCIDS and the Defense Acquisition System. The DoD Component Requirements Authority, in conjunction with the Acquisition Community, is accountable for actions 1-5 in Table 8; the PM is accountable for actions 6-11. The PM shall prepare a table similar to Table 8 to indicate which documents (including page and paragraph) correspond to the Title 40/CCA requirements. CIOs shall use the documents cited in the table prepared by the PM to assess and confirm Title 40/CCA compliance.

c. The OIPT shall resolve issues related to compliance for MAIS programs and MDAPs. The Investment Review Board (IRB) shall resolve issues related to compliance for MAIS and MDAP defense business systems. Reference (f) has more information supporting Title 40/CCA compliance.

2. TIME-CERTAIN ACQUISITION OF AN IT BUSINESS SYSTEM. Before providing Milestone A approval for an IT business system, the MDA shall determine that the system will achieve IOC within five years (section 811 of P.L. 109-364 (Reference (az))). This MDA determination is not required for NSS, but is required for AIS defense business systems, including those that are also MAIS or MDAP.

3. DEFENSE BUSINESS SYSTEMS MANAGEMENT COMMITTEE (DBSMC) CERTIFICATION APPROVAL. For defense business system acquisition programs that have modernization funding exceeding \$1,000,000, the MDA shall not grant any milestone or full-rate production approval or their equivalent, and the authority to obligate funding shall not be granted

until the certification under paragraph (a) of section 2222 of Reference (k) has been approved by the DBSMC (see Enclosure 11).

Table 8. Title 40/CCA Compliance.

Actions Required to Comply With Subtitle III/CCA (Reference (v))	Applicable Program Documentation¹
1. Make a determination that the acquisition supports core, priority functions of the Department. ²	ICD Approval
2. Establish outcome-based performance measures linked to strategic goals. ^{2,3}	ICD, CDD, CPD and APB approval
3. Redesign the processes that the system supports to reduce costs, improve effectiveness and maximize the use of COTS technology. ^{2,3}	Approval of the ICD, Concept of Operations, AoA, CDD, and CPD
4. Determine that no Private Sector or Government source can better support the function. ⁴	Acquisition Strategy page XX, para XX AoA page XX
5. Conduct an analysis of alternatives. ^{3,4}	AoA
6. Conduct an economic analysis that includes a calculation of the return on investment; or for non-AIS programs, conduct a Life-Cycle Cost Estimate (LCCE). ^{3,4}	Program LCCE Program Economic Analysis for MAIS
7. Develop clearly established measures and accountability for program progress.	Acquisition Strategy page XX APB
8. Ensure that the acquisition is consistent with the Global Information Grid policies and architecture, to include relevant standards.	APB (Net-Ready KPP) ISP (Information Exchange Requirements)
9. Ensure that the program has an information assurance strategy that is consistent with DoD policies, standards and architectures, to include relevant standards. ³	Acquisition Information Assurance Strategy
10. Ensure, 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
11. Register Mission-Critical and Mission-Essential systems with the DoD CIO. ^{3,5}	DoD IT Portfolio Repository
<p>1. 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. Include page(s) and paragraph(s), where appropriate.</p> <p>2. 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.</p> <p>3. These actions are also required to comply with section 811 of Reference (ag).</p> <p>4. For NSS, these requirements apply to the extent practicable (section 11103 of Reference (v))</p> <p>5. Definitions:</p> <p>Mission-Critical Information System. A system that meets the definitions of “information system” and “national security system” in the CCA (Reference (v)), the loss of which would cause the stoppage of warfighter operations or direct mission support of warfighter operations. (The designation of mission critical shall be made by a Component Head, a Combatant Commander, or their designee. A financial management IT system shall be considered a mission-critical IT system as defined by the Under Secretary of Defense (Comptroller) (USD(C)).) A “Mission-Critical Information Technology System” has the same meaning as a “Mission-Critical Information System.”</p> <p>Mission-Essential Information System. A system that meets the definition of “information system” in Reference (v), that the acquiring Component Head or designee determines is basic and necessary for the accomplishment of the organizational mission. (The designation of mission-essential shall be made by a Component Head, a Combatant Commander, or their designee. A financial management IT system shall be considered a mission-essential IT system as defined by the USD(C).) A “Mission-Essential Information Technology System” has the same meaning as a “Mission-Essential Information System.”</p>	

4. MAIS CANCELLATION OR SIGNIFICANT REDUCTION IN SCOPE. As required by section 806 of Reference (ah), the DoD CIO shall notify the congressional defense committees at least 60 days before any MDA cancels or significantly reduces the scope of a MAIS program that has been fielded or has received Milestone C approval.

5. LIMITED DEPLOYMENT FOR A MAIS ACQUISITION PROGRAM. At Milestone C, the MDA for a MAIS acquisition program shall approve, in coordination with DOT&E, the quantity and location of sites for a limited deployment of the system for IOT&E.

6. DoD ENTERPRISE SOFTWARE INITIATIVE. When the use of commercial IT is considered viable, maximum use of and coordination with the DoD Enterprise Software Initiative shall be made.

ENCLOSURE 6

INTEGRATED T&E

1. OVERVIEW

a. The fundamental purpose of T&E is to provide knowledge to assist in managing the risks involved in developing, producing, operating, and sustaining systems and capabilities. T&E measures progress in both system and capability development. T&E provides knowledge of system capabilities and limitations to the acquisition community for use in improving the system performance, and the user community for optimizing system use in operations. T&E expertise must be brought to bear at the beginning of the system life cycle to provide earlier learning about the strengths and weaknesses of the system under development. The goal is early identification of technical, operational, and system deficiencies, so that appropriate and timely corrective actions can be developed prior to fielding the system.

b. The PM, in concert with the user and the T&E community, shall coordinate DT&E, OT&E, LFT&E, family-of-systems interoperability testing, information assurance 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 STAR or STA. The T&E strategy shall also address development and assessment of the weapons support equipment during the EMD Phase, and into production, to ensure satisfactory test system measurement performance, calibration traceability and support, required diagnostics, and safety. 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. The PM, in concert with the user and the T&E community, shall provide safety releases (to include formal Environment, Safety, and Occupational Health (ESOH) risk acceptance in accordance with Section 6 of Enclosure 12) to the developmental and operational testers prior to any test using personnel.

c. The PM shall design DT&E objectives appropriate to each phase and milestone of an acquisition program. Testing shall be event-driven and monitored by the use of success criteria within each phase, OT&E entrance criteria, and other metrics designed to measure progress and support the decision process. The OTA and the PM shall collaboratively design OT&E objectives appropriate to each phase and milestone of a program, and these objectives shall be included in the 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 that was based exclusively on computer modeling, simulation, or an analysis of system requirements, engineering proposals, design specifications, or any other information contained in program documents (sections 2399 and 2366 of Reference (k)).

d. Systems that provide capabilities for joint missions shall be tested in the expected joint operational environment.

2. T&E PLANNING

a. Test and Evaluation Strategy (TES). At Milestone A, the PM shall submit a TES that describes the overall test approach for integrating developmental, operational, and live-fire test and evaluation and addresses test resource planning. The TES shall include a test plan that addresses Technology Development phase activity, including the identification and management of technology risk, and the evaluation of system design concepts against the preliminary mission requirements resulting from the AoA. Test planning shall address the T&E aspects of competitive prototyping, early demonstration of technologies in relevant environments, and the development of an integrated test approach. The Milestone A test plan shall rely on the ICD as the basis for the evaluation strategy. For programs on the OSD T&E Oversight List, the TES shall be submitted to the USD(AT&L) and the DOT&E for approval.

b. Test and Evaluation Master Plan (TEMP). The PMs for MDAPs, MAIS Acquisition Programs, and programs on the OSD T&E Oversight List shall submit a TEMP to the USD(AT&L) and the DOT&E for approval to support Milestones B and C and the Full-Rate Production decision. The TEMP shall describe planned developmental, operational, and live-fire testing, including measures to evaluate the performance of the system during these test periods; an integrated test schedule; and the resource requirements to accomplish the planned testing. The MDA or designee shall ensure that IOT&E entrance criteria, to be used to determine IOT&E readiness certification in support of each planned operational test, are developed and documented in the TEMP.

c. Planning Requirements

(1) Planning shall provide for completed DT&E, IOT&E, and LFT&E, as required, before entering full-rate production.

(2) 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 ensure effective performance in the intended operational environment.

(3) Test planning and conduct shall take full advantage of existing investment in DoD ranges, facilities, and other resources. Embedded instrumentation shall be designed and developed to facilitate training, logistics support, and combat data collection.

(4) Planning shall consider the potential testing impacts on the environment (sections 4321-4347 of Reference (ac) and Reference (ad)).

(5) The concept of early and integrated T&E shall emphasize prototype testing during EMD and early OAs to identify technology risks and provide operational user impacts.

(6) Appropriate use of accredited models and simulation shall support DT&E, IOT&E, and LFT&E.

(7) The DOT&E and the Director, SSE, shall have full and timely access to all available developmental, operational, and live-fire T&E data, records, and reports.

(8) 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, 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 Command (JITC), regardless of ACAT, shall provide system interoperability test certification memorandums to the Deputy Under Secretary of Defense (Acquisition and Technology) (DUSD(A&T)), the ASD(NII)/DoD CIO, and the Director, Joint Staff J-6, throughout the system life-cycle.

3. DT&E. During DT&E, the materiel developer shall:

- a. Identify the technical capabilities and limitations of the alternative concepts and design options under consideration;
- b. Identify and describe design technical risks;
- c. 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;
- d. Assess technical progress and maturity against critical technical parameters, to include interoperability, documented in the TEMP;
- e. Assess the safety of the system/item to ensure safety during OT and other troop-supported testing and to support success in meeting design safety criteria;
- f. Provide data and analytic support to the decision process to certify the system ready for IOT&E;
- g. Conduct information assurance testing on any system that collects, stores, transmits, or processes unclassified or classified information;
- h. In the case of IT systems, including NSS, support the DoD Information Assurance Certification and Accreditation Process and Joint Interoperability Certification process; and
- i. Prior to full-rate production, demonstrate the maturity of the production process through Production Qualification Testing of LRIP assets.

4. READINESS FOR IOT&E

a. The DoD Components shall each establish an Operational Test Readiness Process for programs on the OSD T&E Oversight List, consistent with the following requirements:

(1) The process shall include a review of DT&E results; an assessment of the system's progress against critical technical parameters documented in the TEMP; an analysis of identified technical risks to verify that those risks have been retired during developmental testing; and a review of the IOT&E entrance criteria specified in the TEMP. Programs shall provide copies of the DT&E report and the progress assessment to USD(AT&L) and DOT&E.

(2) At each test readiness review, the PM shall ensure that the impact of deviations and waivers is considered in the decision to proceed to the next phase of testing.

b. The DUSD(A&T) shall conduct an independent Assessment of Operational Test Readiness (AOTR) for all ACAT ID and special interest programs designated by the USD(AT&L). Each AOTR shall consider the risks associated with the system's ability to meet operational suitability and effectiveness goals. This assessment shall be based on capabilities demonstrated in DT&E and OAs and criteria described in the TEMP. Where feasible, the AOTR shall be performed in conjunction with the program's review and reporting activities as described in subparagraph 4.a.(1) of this Enclosure. The AOTR report shall be provided to the USD(AT&L), DOT&E, and CAE.

c. The CAE shall consider the results of the AOTR prior to making a determination of materiel system readiness for IOT&E.

5. OT&E

a. OT&E Requirements

(1) OT&E shall be used to determine the operational effectiveness and suitability of a system under realistic operational conditions, including joint combat operations; determine if thresholds in the approved CPD and critical operational issues have been satisfied; assess impacts to combat operations; and provide additional information on the system's operational capabilities.

(2) The lead OTA shall brief the 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.

(3) Typical users shall operate and maintain the system or item under conditions simulating combat stress and peacetime conditions.

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

(5) Hardware and software alterations that materially change system performance, including system upgrades and changes to correct deficiencies, shall undergo OT&E.

(6) OTAs shall conduct an independent, dedicated phase of IOT&E before full-rate production to evaluate operational effectiveness and suitability, as required by section 2399 of Reference (k).

(7) All weapon, information, and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance programs that depend on external information sources, or that provide information to other DoD systems, shall be tested and evaluated for information assurance.

(8) The DOT&E, following consultation with the PM, shall determine the quantity of articles procured for IOT&E for MDAPs; the cognizant OTA, following consultation with the PM, shall make this decision for non-MDAPs (section 2399 of Reference (k)).

(9) The DOT&E shall assess the adequacy of IOT&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 FOT&E reporting to:

- (a) Complete IOT&E activity;
- (b) Refine IOT&E estimates;
- (c) Verify correction of deficiencies;
- (d) Evaluate significant changes to system design or employment; and
- (e) Evaluate whether or not the system continues to meet operational needs and retain operational effectiveness in a substantially new environment, as appropriate.

b. OT&E Information Promulgation

(1) The responsible test organization shall release valid test data and factual information in as near-real-time as possible to all DoD organizations and contractors with a need to know. Data may be preliminary and shall be identified as such.

(2) To protect the integrity of the OTA evaluation process, release of evaluation results may be withheld until the final report, according to the established policies of each OTA. Nothing in this policy shall be interpreted as limiting the statutory requirement for immediate access to all OT&E results by DOT&E.

(3) The primary intent of this policy is to give developing agencies visibility of factual data produced during OT&E, while not allowing the developmental agency any influence over the outcome of those evaluations.

c. Use of Contractors in Support of OT&E

(1) Per section 2399 of Reference (k), persons employed by the contractor for the system being developed may only participate in OT&E of MDAPs to the extent they are planned to be involved in the operation, maintenance, and other support of the system when deployed in combat.

(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.

(3) The DOT&E may waive the limitations in 5.c.(1) and 5.c.(2) of this enclosure if the 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.

6. OSD T&E OVERSIGHT LIST

a. The DOT&E and the DUSD(A&T) 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 OSD memorandum, "Designation of Programs for OSD Test and Evaluation (T&E) Oversight" (Reference (bb)) will identify these programs.

b. Programs may be placed on the OSD T&E Oversight List in one or more of the following categories: developmental testing, operational testing, or live fire testing. Unless otherwise indicated, programs designated for operational and live-fire test and evaluation are to be considered MDAPs and covered programs subject to the provisions of sections 139, 2366, and 2399 of Reference (k) and the requirements of this Instruction, including the submission of T&E Strategies, DIA or DoD Component-validated STARS, TEMPs, Operational Test Plans, and reporting of test results.

c. Force protection equipment (including non-lethal weapons) will be identified as a separate category on the OSD T&E Oversight List. With respect to OT&E and/or survivability testing of such equipment, DOT&E will provide guidance to and consult with senior Defense officials to expedite suitable OT&E; provide objective subject-matter expertise; encourage data sharing between DoD Components; and facilitate the use of common test standards. The DOT&E will not delay deployment of, nor require approval of test plans for, such equipment (section 139 of Reference (k)). Force protection programs are not MDAPs unless they meet the requirements specified in sections 2430 and 2399 of Reference (k).

7. LFT&E. (Not applicable to ACAT IA programs.) Section 2366 of Reference (k) 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.

8. 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.

9. FOREIGN COMPARATIVE TESTING (FCT). Paragraph (g) of section 2350a of Reference (k) 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 approved DoD requirements. The USD(AT&L) shall centrally manage FCT and notify the congressional defense committees of the intent to obligate funds made available to carry out FCT not less than 7 days before such funds are obligated.

10. TESTING INCREMENTS OF AN EVOLUTIONARY ACQUISITION PROGRAM. The structure of these test activities depends on the program acquisition strategy. In general, all programs shall:

- a. Provide for early involvement of the Service OTA/JITC in DT&E and test planning;
- b. Conduct adequate DT&E, LFT&E, and OT&E of the first and each successive increment of capability;
- c. Integrate, as appropriate, and without compromising the specific requirements of the different types of testing, successive periods of DT&E, LFT&E, and IOT&E;
- d. 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;
- e. For programs under OSD OT&E and/or LFT&E oversight, support DOT&E's intended schedule for reporting to the Secretary of Defense and congressional defense committees.

ENCLOSURE 7

RESOURCE ESTIMATION

1. CAIG INDEPENDENT LCCEs. The OSD CAIG shall prepare independent LCCEs per section 2434 of Reference (k). The CAIG shall provide the MDA with an independent LCCE at major decision points as specified in statute, and when directed by the MDA. The MDA shall consider the independent LCCE before approving entry into the EMD Phase or the Production and Deployment Phase. The CAIG shall also prepare an ICE for ACAT IC programs at the request of the USD(AT&L). A CAIG ICE is not required for ACAT IA programs. (DoD Directive 5000.04 (Reference (bc)))

2. CARD. For ACAT I and IA programs, the PM shall prepare, and an authority no lower than the DoD Component PEO shall approve, the CARD. DoD 5000.4-M (Reference (bd)) 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 DoD Component-unique requirements. The teams preparing the DoD Component 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. The PM shall synchronize preparation of the CARD with other program documents so that the final CARD is consistent with other final program documentation. At Milestone B, the program described in the final CARD(s) shall reflect the program definition achieved during the Technology Development Phase. If the PDR is conducted before Milestone B, the final CARD(s) at Milestone B shall reflect the results of the PDR.

3. COST REPORTING. Standardized cost data procedures and formats support credible cost estimates for current and future programs. Reference (bc) authorizes the CAIG Chair to establish procedural guidance for cost data collection and monitoring systems. Reference (at) identifies procedural and standard data formatting requirements for the CSDR system.
 - a. The two components of the CSDR system are the CCDR and SRDR. PMs shall use the CSDR system to report data on contractor costs and resource usage incurred in performing DoD programs. Proposed CSDR plan(s) for ACAT I programs shall be approved by the CAIG Chair prior to the issuance of a contract solicitation. The Chair, CAIG, may waive the information requirements of Table 4 in Enclosure 4.

 - b. On ACAT I programs, the sustainment contracts or organic Inter-/Intra-Service agreements (such as Memorandums of Understanding) shall provide tailored cost reporting that can facilitate future cost estimating and price analysis. If the logistics support falls under a performance-based life-cycle product support strategy, the contracts or organic agreements shall also include an agreed-to set of performance metrics that can be used to monitor performance.

4. 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 (bd)):

- a. The CAIG shall participate in Integrated Product Team (IPT) meetings (Cost Working-level IPTs/OIPTs);
- b. The CAIG, DoD Components, and PM shall share data and models and use the same CARD;
- c. The CAIG, DoD Components, and PM shall raise and resolve issues in a timely manner and at the lowest possible level;
- d. The CAIG shall brief the preliminary, independent, LCCE to the PM 45 days before the OIPT, and the final estimate 21 days before the OIPT;
- e. The CAIG, DoD Component, and PM shall address differences between the independent LCCE and the DoD Component cost estimate; and
- f. The PM shall identify issues projected to be brought to the OIPT to the Chairman, CAIG, in a timely manner.
- g. For a joint program, the DoD Component's cost estimate shall be prepared by the lead DoD Component or Executive Agent.

5. ANALYSIS OF ALTERNATIVES PROCEDURES. For potential and designated ACAT I and IA programs, the DPA&E shall draft, for MDA approval, AoA study guidance for review at the Materiel Development Decision. Following approval, the guidance shall be issued to the DoD Component designated by the MDA, or for ACAT IA programs, to the office of the Principal Staff Assistant responsible for the mission area. The DoD Component or the Principal Staff Assistant shall designate responsibility for completion of the study plan and the AoA; neither of which may be assigned to the PM. The study plan shall be coordinated with the MDA and approved by the DPA&E prior to the start of the AoA. The final AoA shall be provided to the DPA&E not later than 60 days prior to the DAB or ITAB milestone reviews. The DPA&E shall evaluate the AoA and provide an assessment to the Head of the DoD Component or Principal Staff Assistant and to the MDA. In this evaluation, the DPA&E, in collaboration with the OSD and Joint Staff, shall assess the extent to which the AoA:

- a. Illuminated capability advantages and disadvantages;
- b. Considered joint operational plans;
- c. Examined sufficient feasible alternatives;

d. Discussed key assumptions and variables and sensitivity to changes in these;

e. Calculated costs; and,

f. Assessed the following:

(1) Technology risk and maturity;

(2) Alternative ways to improve the energy efficiency of DoD tactical systems with end items that create a demand for energy, consistent with mission requirements and cost effectiveness; and

(3) Appropriate system training to ensure that effective and efficient training is provided with the system.

6. ENERGY CONSIDERATIONS. The fully burdened cost of delivered energy shall be used in trade-off analyses conducted for all DoD tactical systems with end items that create a demand for energy.

ENCLOSURE 8

HUMAN SYSTEMS INTEGRATION (HSI)

1. GENERAL. The PM shall have a plan for HSI in place early in the acquisition process to optimize total system performance, minimize total ownership costs, and ensure that the system is built to accommodate the characteristics of the user population that will operate, maintain, and support the system.

2. HSI PLANNING. HSI planning shall be summarized in the Acquisition Strategy and SEP and shall address the following:

a. Human Factors Engineering. The PM shall take steps (e.g., contract deliverables and Government/contractor IPT teams) to ensure ergonomics, human factors engineering, and cognitive engineering is employed during systems engineering over the life of the program 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.

b. 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 have 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, personnel tempo, and funding issues that impact program execution.

c. 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.

d. 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. The mix of military, DoD civilian, and contract support necessary to operate, maintain, and support (to include providing training) the system shall be determined based on the Manpower Mix Criteria and reported in the Manpower Estimate. Economic analyses used to support workforce mix decisions shall use costing tools that account for fully loaded costs – i.e., all variable and fixed costs, compensation and non-compensation

costs, current and deferred benefits, cash and in-kind benefits. Once the Manpower Estimate is approved by the DoD Component manpower authority, it shall serve as the authoritative source for reporting manpower in other program documentation.

e. 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 the major elements of training, 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 the use of new learning techniques, simulation technology, embedded training and distributed learning (DoD Instruction 1322.26 (Reference (be))), and instrumentation systems that provide “anytime, anyplace” training and reduce the demand on the training establishment. Where possible, the PM shall maximize the use of simulation-supported embedded training, and the training systems shall fully support and mirror the interoperability of the operational system (DoD Directive 1322.18 (Reference (bf))).

f. Safety and Occupational Health. The PM shall ensure that appropriate HSI and ESOH efforts are integrated across disciplines and into systems engineering to determine system design characteristics that can minimize the risks of acute or chronic illness, disability, or death or injury to operators and maintainers; and enhance job performance and productivity of the personnel who operate, maintain, or support the system.

g. Survivability. For systems with missions that might require exposure 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; personnel survivability against asymmetric threats; 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, including the suitability of equipment intended to enhance personnel survivability against asymmetric threats.

ENCLOSURE 9

ACQUISITION OF SERVICES

1. OVERVIEW. Acquisitions of services shall support and enhance the warfighting capabilities of the Department of Defense.

a. All acquisitions of services shall be based on clear, performance-based requirements; include identifiable and measurable cost, schedule, and performance outcomes consistent with customer needs; and receive adequate planning and management to achieve those outcomes.

b. Managers shall use a strategic, enterprise-wide approach for both planning and execution of the acquisition, and shall use business arrangements that are in the best interests of the Department of Defense.

c. All acquisitions of services shall comply with applicable statutes, regulations, policies, and other requirements, whether the services are acquired by or on behalf of the Department of Defense.

2. APPLICABILITY

a. The policies in this enclosure apply to:

(1) All services acquired from private sector entities, by or for the Department of Defense;

(2) Advisory and assistance services even if those services support research and development or construction activities; and

(3) Acquisitions of services occurring after a program achieves full operational capability, if those services were not subject to previous milestone reviews.

b. Except as in 2.c. of this enclosure, the policies in this enclosure do not apply to research and development activities, construction activities, or services that are reviewed and approved as an acquisition program or part of an acquisition program managed in accordance with this Instruction.

c. Senior officials and decision authorities may apply these policies to research and development activities at their discretion.

d. These policies shall not impede the ability of Senior Officials and Decision Authorities to rapidly respond to emergency situations.

3. RESPONSIBILITIES

a. The SAE of each Military Department shall be the Senior Official for acquisitions of services for their Military Department.

b. The USD(AT&L) shall be the Senior Official for acquisitions of services for the DoD Components outside the Military Departments. The USD(AT&L) may delegate decision authority to Commanders and Directors of the DoD Components.

c. Senior Officials shall be responsible for the acquisitions of services within their respective organizations. They shall establish life-cycle management structures to ensure effective implementation of the policies in this enclosure.

d. Senior Officials may designate Decision Authorities to review and approve acquisitions of services.

e. Consistent with the Department's strategic sourcing objective, Senior Officials shall collaborate with other Senior Officials, determine key categories of services for the Department, and dedicate full-time commodity managers to coordinate procurement of these services. Senior Officials shall conduct periodic spend analyses.

f. The USD(AT&L) shall conduct an annual review of the Department's policy for the acquisition of services, and assess the Department's progress in achieving its purpose. Senior Officials, and DoD Component Decision Authorities reporting to the USD(AT&L), shall conduct similar reviews of acquisitions within their authority.

4. ACQUISITION OF SERVICES PLANNING. Consistent with the size and complexity of the program, Senior Officials or their designees shall consider the following (section 2330 of Reference (k)):

a. Requirements Development and Management:

(1) The source of the requirement, the outcomes to be achieved and, if performance-based (see Federal Acquisition Regulation (FAR) Subpart 37.6 (Reference (bg))), what metrics will be used to measure the outcomes.

(2) How the requirement was previously satisfied.

(3) The nature and extent of market research conducted.

(4) Whether it complies, if a consolidated requirement, with Defense Federal Acquisition Regulation Supplement (DFARS) 207.170 (Reference (bh)).

(5) For bundled requirements, determine if a benefit analysis was done as prescribed in the DoD Benefit Analysis Guidebook (Reference (bi)).

b. Acquisition Planning:

- (1) The adequacy of the acquisition approach including appropriate milestones.
- (2) The cost/price estimate for the total planned acquisition.
- (3) How the acquisition will be funded and the availability of funding.
- (4) The technical, business, management, and other significant considerations, including the requirement for competition. For task and delivery order contracts, the enhanced competition requirements stated in sections 2304a and 2304c of Reference (k).
- (5) Opportunities for strategic sourcing.
- (6) The period of performance for the base year and all option years.
- (7) Demonstrated implementation of performance-based acquisition methods or rationale for not using those methods.
- (8) Opportunities to implement socio-economic business concerns.
- (9) Source selection process planning.
- (10) Any required waivers or deviations.
- (11) If other than full and open competition, why full and open competition procedures will not apply, citing the appropriate statutory authority. Actions taken to improve the competitive environment for the current requirement, and plans to improve competition for foreseeable follow-on acquisitions, shall be addressed.
- (12) If the acquisition strategy calls for a multi-year service contract (as distinguished from contracts that span multiple years—see FAR Subpart 17.1 (Reference (bj)) and DFARS Subpart 217.171 (Reference (bk))), the strategy shall address compliance with section 2306c of Reference (k) and Reference (c). OMB Circular A-11 requires that multi-year service contracts be scored as operating leases. Therefore, the Acquisition Strategy shall address the budget scorekeeping that will result from use of the proposed contracting strategy.
- (13) Before acquisition planning for contractor services, the head of the agency acting through manpower officials shall conduct an analysis using the criteria in Reference (r) to ensure contractors do not perform inherently governmental functions or services that are exempt from contract performance.
- (14) A lease-purchase analysis if required by OMB Circular A-94, Section 13 (Reference (bl)).

c. Solicitation and Contract Award:

(1) The type of business arrangements anticipated (e.g., single contract, multiple award task order contract, task order under existing multiple award contract, and interdepartmental transfers, or interdepartmental purchase requests).

(2) The duration of each business arrangement (base period and all option periods).

(3) Pricing arrangements (e.g., fixed price, cost reimbursement, time and materials, labor hour, or variations, based on guidance in FAR Part 16 (Reference (bm)) and, for commercial services, in FAR Part 12 (Reference (bn))).

(4) Proposed evaluation criteria and the employment of award and incentive fees to recognize and promote contract performance.

d. Risk Management: An assessment of current and potential technical, cost, schedule, and performance risks and the plan for mitigating or retiring those risks.

e. Contract Tracking and Oversight: The existing or planned management approach following contract award, quality assurance surveillance or written oversight plans and responsibilities, and tracking procedures or processes used to monitor contract performance.

f. Performance Evaluation: The plan for evaluating whether the metrics and any other measures identified to guide the acquisition have been achieved. These measures shall include the thresholds for cost, schedule, and performance for the acquisition of a service.

5. REVIEW AND APPROVAL

a. Senior Officials shall designate Decision Authorities to review Acquisitions of Services for each of the categories in Table 9 in this enclosure.

b. The following procedures shall apply to IT services estimated to cost more than \$500 million, all services estimated to cost more than \$1 billion, and special interest programs designated by the USD(AT&L), the ASD(NII), or their designees:

(1) Senior Officials of the Military Departments and decision authorities in DoD Components outside the Military Departments shall, before the final solicitation is issued (or, for other than full and open competition, before negotiations commence) notify the USD(AT&L) of any proposed acquisition of non-IT services with a total estimated value over \$1 billion (base year(s) and options), or the ASD(NII)/DoD CIO of any proposed acquisition of IT services with a total estimated value over \$500 million (base year(s) and options).

Table 9. Acquisition of Services Categories.

Category	Threshold	Decision Authority
Acquisitions >\$1B	Any acquisition of services with a total estimated cost of \$1 billion or more	USD(AT&L) or designee
IT Acquisitions >\$500M	Any acquisition of IT services with a total estimated cost of \$500 million	ASD(NII)/DoD CIO or as designated
Special Interest	As designated by USD(AT&L), ASD(NII)/DoD CIO, or Military Department Senior Official	USD(AT&L) or Senior Officials
Services Category I	Acquisitions of services estimated to cost \$250 million or more	Senior Official or as designated
Services Category II	Acquisitions of services estimated to cost \$10 million or more, but less than \$250 million	Senior Official or as designated
Services Category III	Acquisitions of services estimated to cost more than the simplified acquisition threshold but less than \$10 million	Senior Official or as designated
<ul style="list-style-type: none"> • Dollar amounts are in Fiscal Year 2006 constant-year dollars. • Related task orders within an ordering vehicle shall be viewed as one effort for the purpose of determining the appropriate thresholds. • If a proposed acquisition includes both hardware and services, and the estimated value of the services portion exceeds the values specified in paragraphs 5.b.(1) and 5.b.(3) of this enclosure, the notification requirements of those paragraphs shall apply. • Oversight of Services Category III acquisitions should be implemented as soon as possible, but shall not be implemented later than October 1, 2009. • If the contract or task order is not performance-based, and the decision authority is other than the Senior Official, acquisitions of services expected to exceed \$78.5 million shall require approval of the senior procurement executive (DFARS Subpart 237.170 (Reference (bo))). • Decision authorities or their designees shall review and approve all contracts and task or delivery orders exceeding the simplified acquisition threshold, issued by a non-DoD agency on behalf of the Department of Defense (DFARS Subpart 217.78 (Reference (bp))). 		

(2) Notification shall consist of a briefing or written notification to the Director, Defense Procurement, Acquisition Policy, and Strategic Sourcing (DPAP), in the Office of the USD(AT&L), or the Director, Acquisition, in the Office of the ASD(NII), indicating the expected value of the acquisition of services for the projected life (base year and options) of the contract, and providing copies of the Acquisition Strategy and, if competitive, sections L and M of the solicitation. A Justification and Approval and an acquisition plan will be submitted if the acquisition strategy uses a sole source approach or if directed by the Decision Authority.

(3) The ASD(NII)/DoD CIO shall notify the USD(AT&L) of any proposed acquisitions of IT services with a total estimated value greater than \$1 billion (base year(s) and options).

(4) Within 10 working days after receipt of the notification, the USD(AT&L) or ASD(NII)/DoD CIO or designee shall initiate a review of the proposed acquisition strategy. The review shall be accomplished within 30 days. Issues arising from the review shall be resolved in accordance with procedures specified by the USD(AT&L) or ASD(NII)/DoD CIO or designee,

in direct coordination with the originating Senior Official or decision authority. After completion of the review, the Director, DPAP (for all acquisitions greater than \$1 billion), or the ASD(NII) (for acquisitions of IT services greater than \$500 million), shall document the result in a decision memorandum. The acquisition may only proceed, and final RFPs may only be released, after the Acquisition Strategy has been approved.

c. The Director, DPAP, shall maintain a list of the acquisitions of services expected to exceed \$1 billion (base year(s) and options) based upon the notifications provided by the DoD Components.

6. INDEPENDENT MANAGEMENT REVIEWS (HEREAFTER REFERRED TO AS “PEER REVIEWS”). The Director, DPAP, shall organize review teams and facilitate pre-award and post-award Peer Reviews for all service contracts with an estimated value of \$1 billion or more (including options). The teams shall be comprised of senior contracting leaders from across the Department of Defense, as well as members of the Office of General Counsel who are civilian employees or military personnel from outside of the military department or other defense agency whose procurement is the subject of the Peer Review. Senior Officials and DoD Component Decision Authorities under the cognizance of USD(AT&L) shall establish their own procedures to conduct pre and post-award Peer Reviews for contracts valued at less than \$1 billion.

a. Pre-Award Peer Reviews shall be conducted in three phases for competitive procurements: 1) prior to issuance of the solicitation; 2) prior to request for final proposal revisions; and 3) prior to contract award. For non-competitive procurements, pre-award Peer Reviews shall be conducted at the pre- and post-business clearance phases. For continuity, review teams shall be comprised of the same members for each phase, whenever possible. Pre-Award Peer Reviews shall assess the following elements:

- (1) The process was well understood by both Government and Industry;
- (2) Source selection was carried out in accordance with the Source Selection Plan and RFP;
- (3) The Source Selection Evaluation Board evaluation was clearly documented;
- (4) The Source Selection Advisory Council advisory panel recommendation was clearly documented;
- (5) The Source Selection Authority decision was clearly derived from the conduct of the source selection process;
- (6) All source selection documentation is consistent with the Section M evaluation criteria; and
- (7) The business arrangement.

b. Post-Award Peer Reviews shall assess the following elements:

- (1) Contract performance in terms of cost, schedule, and requirements;
- (2) Use of contracting mechanisms, including the use of competition, the contract structure and type, the definition of contract requirements, cost or pricing methods, the award and negotiation of task orders, and management and oversight mechanisms;
- (3) The contractor's use, management, and oversight of subcontractors;
- (4) The staffing of contract management and oversight functions;
- (5) The extent of any pass-through charges and excessive pass-through charges (as defined in DFARS 252.215-7004 (Reference (bq)) and section 852 of P.L. 109-364 (Reference (br))); and
- (6) For contracts under which one contractor provides oversight for services performed by other contractors:
 - (a) Evaluation of the extent of the agency's reliance on the contractor to perform acquisition functions closely associated with inherently governmental functions as defined in paragraph (b)(3) of section 2383 of Reference (k); and
 - (b) Evaluation of the financial interest of any prime contractor performing acquisition functions described in paragraph 6.b.(6)(a) of this enclosure in any contract or subcontract with regard to which the contractor provided advice or recommendations to the agency.

7. DATA COLLECTION. Senior Officials and DoD Component Decision Authorities under the cognizance of USD(AT&L) shall establish procedures to collect acquisition of services data. The collection of the following data shall be automated, and the data may be requested by the USD(AT&L), ASD(NII)/DoD CIO, or Senior Official at any time:

- a. The services purchased.
- b. The total estimated value (base year(s) and options) of the contract/task order/interdepartmental purchase request.
- c. The total estimated value of the instant acquisition and the total dollar amount obligated to date on the contract.
- d. The type of contract action used to make the purchase (i.e., fixed price type, cost type, or time and materials task order/contract).
- e. Whether the purchase was made through:

(1) A performance-based contract, performance-based task order, or other performance-based arrangement that contains firm fixed prices for the specific tasks to be performed;

(2) Any other performance-based contract, performance-based task order, or performance-based arrangement; or

(3) Any contract, task order, or other arrangement that is not performance-based.

f. If the purchase was made on behalf of the Department of Defense, the identity of the agency that made the purchase.

g. The extent of competition in making the purchase and the number of offerors.

h. Whether the purchase was made from:

(1) A small business concern;

(2) A small business concern owned and controlled by socially and economically disadvantaged individuals; or

(3) A small business concern owned and controlled by women.

(4) A small business concern owned and controlled by a veteran;

(5) A small business concern owned and controlled by a service-disabled veteran; or

(6) A small business concern certified by the Small Business Administration as an Historically Underutilized Business Zone concern.

i. The functions and missions performed by the contractor.

j. The contracting organization, the component of the DoD administering the contract, and the organization whose requirements are being met through contractor performance of this function.

k. The funding source, by appropriation and operating agency.

l. The fiscal year for which the activity first appeared on an inventory required by paragraph (c) of section 2330a of Reference (k).

m. The number of full time contractor employees (or its equivalent) paid for the performance of the activity.

n. A determination whether the contract is a personal services contract.

8. COMPLIANCE WITH TITLE 40/CCA. All acquisitions of IT services, regardless of acquisition of services category, are subject to sections 11101 et seq. of Title 40/CCA (Reference (v)). For acquisitions of IT services with a total estimated value greater than \$500 million, DoD Component Senior Officials, Decision Authorities, and CIOs shall ensure:

a. Acquisition planning addresses the elements of Table 8 in Enclosure 5; and

b. The acquisition strategy and related planning address the relevant aspects of sections 11101 et seq. of subtitle III of Reference (v) before the final solicitation is issued or, for other than full and open competition, before negotiations commence.

9. DEFINITIONS

a. Service. Engagement of the time and effort of a contractor whose primary purpose is to perform an identifiable task, or tasks, rather than to furnish an end item of supply.

b. Procurement Action. With respect to the acquisition of services, a procurement action includes the following:

(1) Entry into a contract or any other form of agreement including, but not limited to, basic ordering agreements, blanket purchase agreements, indefinite quantity/indefinite delivery contracts, and similar ordering agreements.

(2) Issuance of a task order or any transfer of funds to acquire a service on behalf of the Department of Defense.

c. Acquisition of Services. The execution of one or multiple contracts or other instruments committing or obligating funds (e.g., funds transfer, placing orders under existing contracts) for a specified requirement. Acquisition begins at the point when agency needs are established and includes all functions directly related to the process of fulfilling those needs by contract, agreements, or funds transfer.

d. IT Services. The performance of any work related to IT and the operation of IT, including NSS. This includes outsourced IT-based business processes, outsourced IT, and outsourced information functions.

ENCLOSURE 10

PROGRAM MANAGEMENT

1. ASSIGNMENT OF PROGRAM MANAGERS. A PM shall be designated for each acquisition program. This designation shall be made no later than program initiation, and may be made earlier when determined by the MDA. It is essential that the PM have an understanding of user needs and constraints, familiarity with development principles, and requisite management skills and experience. Unless a waiver is granted by the DAE or CAE, a PM shall be experienced and certified in acquisition management. Waivers should be strictly avoided. 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 IA 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 4 years, in accordance with section 1734 of Reference (k). PMs for ACAT II and other significant non-major programs shall be assigned for not less than 3 years.

2. PROGRAM MANAGEMENT AGREEMENTS (PMAs)

a. PMAs establish achievable and measurable annual plans that are fully resourced and reflect the approved program. PMAs shall be prepared for ACAT I and II programs after the Department makes the investment decision to pursue a new program and the PM has been assigned. The PM, the CAE, and the requirements and, where applicable, resource authorities shall sign the agreement. PMAs shall be updated annually or more frequently if the conditions that formed the basis for the agreement (e.g., requirements, funding, or execution plans) have changed.

b. PMAs shall establish the PM's clear authority to object to the addition of new program requirements that would be inconsistent with the parameters established at Milestone B and reflected in the PMA (unless such requirements are approved by the appropriate CSB); and the authority to recommend to the appropriate CSB reduced program requirements that have the potential to improve program cost or schedule in a manner consistent with program objectives.

c. DoD Components are encouraged to prepare PMAs for ACAT III programs.

3. ASSIGNMENT OF PROGRAM EXECUTIVE RESPONSIBILITY

a. Unless a waiver is granted for a particular program by the USD(AT&L), 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.

b. Unless a waiver is granted by the DAE or CAE, a PEO shall be experienced and certified in acquisition management. Waivers should be strictly avoided.

c. The PEO shall be dedicated to executive management and shall not have other command responsibilities unless waived by the USD(AT&L).

d. The CAE shall make this assignment no later than program initiation, or within 3 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) of the decision to have a PM report directly to the CAE.

e. 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 IOC, have achieved full-rate production, be certified as interoperable within the intended operational environment, and be supportable as planned.

4. **JOINT PROGRAM MANAGEMENT.** The DoD Components shall not terminate or substantially reduce participation in joint ACAT ID or ACAT IAM programs without Requirements Authority review and USD(AT&L) approval. The USD(AT&L) 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.

5. INTERNATIONAL COOPERATIVE PROGRAM MANAGEMENT

a. PMs shall pursue opportunities throughout the acquisition life cycle that enhance international cooperation and improve interoperability (DoD Directive 2010.6 (Reference (bs))).

b. An international cooperative program is any acquisition program or technology project that includes participation by one or more foreign nations, through an international agreement, during any phase of a system's life cycle. All AT&L-related international agreements may use the streamlined procedures in Reference (f) for review and approval rather than the procedures in DoD Directive 5530.3 (Reference (bt)). All international cooperative programs shall consider applicable U.S.-ratified materiel international standardization agreements (Reference (h)), and 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.

c. DoD Components shall notify and obtain the approval of the USD(AT&L) for ACAT ID or ACAT IAM programs before terminating or substantially reducing participation in international cooperative programs under signed international agreements. The USD(AT&L) 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.

d. Acquisition and Cross Servicing Agreement (ACSA) Authorities: PMs and others responsible for the acquisition from and transfer to authorized foreign governments of logistic support, supplies, and services shall be aware of and understand DoD Directive 2010.9 (Reference (bu)) for the use of Acquisition and Cross Servicing Agreement (ACSA) Authorities and the potential impact that ACSA acquisitions and transfers may have on their own support strategies.

6. 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 (bv)).) Electronic record-keeping systems shall preserve the information submitted, as required by section 3101 of title 44, U.S.C. (Reference (bw)) 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.

ENCLOSURE 11

MANAGEMENT OF DEFENSE BUSINESS SYSTEMS

1. PURPOSE. This enclosure describes the procedures for review and certification of defense business system modernizations with total modernization or development funding exceeding \$1 million.

2. DEFINITION. The term “defense business system” means an information system, other than a national security system, operated by, for, or on behalf of the Department of Defense, including financial systems, mixed systems, financial data feeder systems, and IT and information assurance infrastructure. Defense business systems support business activities such as acquisition, financial management, logistics, strategic planning and budgeting, installations and environment, and human resource management.

3. ACQUISITION REVIEW PROCEDURES

a. Obligation of Funds: Funds shall not be obligated for defense business systems until the DBSMC approves the certification required by section 2222 of Reference (k).

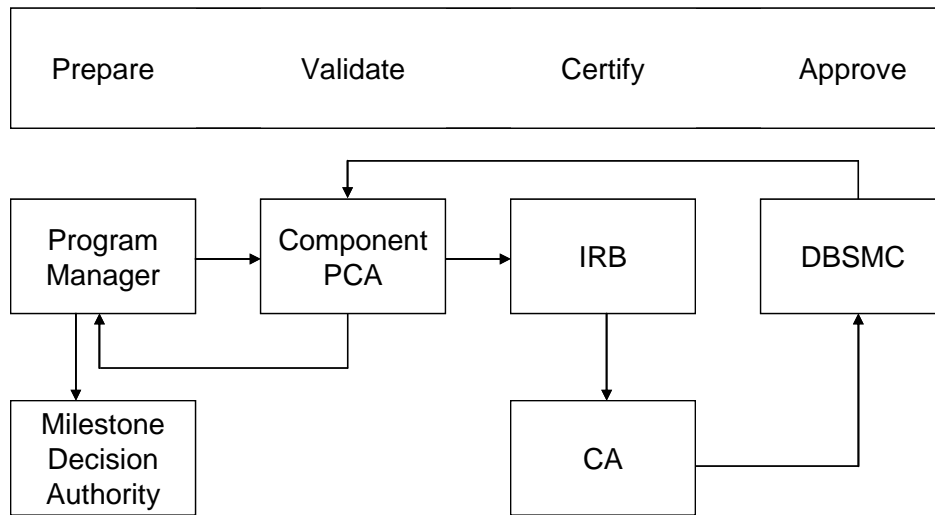
b. IRB: An IRB shall facilitate program communications and issue resolution, and shall support the MDA for ACAT IAM business systems.

c. Enterprise Risk Assessment Methodology (ERAM): An independent risk assessment shall be performed prior to all milestone decisions for each ACAT IAM business system. These assessments are known as ERAM assessments. The ERAM findings shall be provided to the IRB and the MDA prior to all milestone decisions. Additional ERAMs can be requested by the cognizant IRB or the MDA. For programs below the MAIS threshold, the responsible MDA and the PM shall consider a similar independent risk assessment.

d. The CAE shall provide the cognizant IRB with a written statement that the program is compliant with applicable statute and regulation (e.g., the requirements in Enclosure 4), describe any issues applicable to the milestone decision, and recommend approval of the milestone by the MDA.

e. Figure 3 depicts executive-level certification and approval activities for defense business systems. The IRB Concept of Operations (Reference (bx)) and IRB User Guidance (Reference (by)) provide additional detail on the process, roles and responsibilities, and documentation requirements. The following principal actions shall support IRB Certification and DBSMC approval:

Figure 3. IRB Certification and DBSMC Approval Process.



(1) Prepare. The PM shall describe the program and update the DoD global business system inventory regarding the specific certification request. The PM shall complete an economic viability review and prepare other plans or analyses as required by the DoD Component Pre-Certification Authority (PCA) or the responsible IRB.

(2) Validate. Each DoD Component shall designate a PCA (typically within its CIO organization) with portfolio responsibility for the organization. The PCA shall serve as the primary authority within the DoD Component responsible for review and validation of business systems certification requests, and shall identify the programs requiring IRB Certification and DBSMC approval. The PCA shall be responsible for validation of all information submitted by the PM. The PCA shall maintain a readily available library of supporting documentation for all defense business system programs. The PCA shall transmit the validated defense business system certification request to the responsible IRB for certification.

(3) Certify

(a) The responsible IRB advises the IRB Chair on matters related to defense business system certification requests. The IRB Chair shall determine whether each request:

1. is in compliance with the enterprise architecture; or
2. is necessary to achieve a critical national security capability or address a critical requirement in an area such as safety or security; or
3. is necessary to prevent a significant adverse effect on a project that is needed to achieve an essential capability, taking into consideration the alternative solutions for preventing such adverse effect.

(b) If the IRB Chair determines that the certification request satisfies one or more of the above criteria, the Chair shall recommend that the appropriate Approval Authority sign a certification memorandum and request DBSMC approval. The Approval Authorities (also referred to as Certification Authorities) are the USD(AT&L) for any defense business system of which the primary purpose is to support acquisition, logistics, or installations and environment activities; USD(C) for any defense business system of which the primary purpose is to support financial management, or strategic planning and budgeting activities; USD(P&R) for any defense business system of which the primary purpose is to support human resource management activities; ASD(NII) for any defense business system of which the primary purpose is to support information technology infrastructure or information assurance activities; and the Deputy Secretary of Defense for any defense business system of which the primary purpose is to support any DoD activity not covered in this paragraph (section 2222 of Reference (k)). The certification memorandum shall include any conditions placed on the certification.

(4) Approve. The DBSMC Chair is the final approval authority for all defense business system certification requests. The Chair shall document decisions in an official memorandum to affected PMs through the DoD Component PCAs. DBSMC Chair approval shall occur before the first milestone review of an acquisition program or technology project. The PM shall include a copy of the DBSMC-approved DoD Certification Authority Memorandum with the documentation provided to the MDA. A DBSMC certification approval does not constitute authority to execute an acquisition program. Consistent with those documents, only the appropriate MDA can approve the acquisition strategy, technology readiness, milestones, and other aspects of a formal acquisition program. The statutory and regulatory requirements specified in this document, and applicable to business systems, shall be followed.

4. ANNUAL REVIEW. Following DBSMC approval, the IRB Chair shall review the program annually. If the IRB Chair determines that the system has failed to comply with previously imposed conditions, or that risks to the system are not acceptable, the Chair may recommend de-certification to the DBSMC through the DoD Certification Authority.

ENCLOSURE 12

SYSTEMS ENGINEERING

1. SYSTEMS ENGINEERING ACROSS THE ACQUISITION LIFE CYCLE. Rigorous systems engineering discipline is necessary to ensure that the Department of Defense meets the challenge of developing and maintaining needed warfighting capability. Systems engineering provides the integrating technical processes to define and balance system performance, cost, schedule, and risk within a family-of-systems and systems-of-systems context. Systems engineering shall be embedded in program planning and be designed to support the entire acquisition life cycle.

2. SYSTEMS ENGINEERING PLAN (SEP)

a. PMs shall prepare a SEP for each milestone review, beginning with Milestone A. At Milestone A, the SEP shall support the TDS; at Milestone B or later, the SEP shall support the Acquisition Strategy. The SEP shall describe the program's overall technical approach, including key technical risks, processes, resources, metrics, and applicable performance incentives. It shall also detail the timing, conduct, and success criteria of technical reviews.

b. The DUSD(A&T) shall be the SEP approval authority for programs that will be reviewed by the DAB/ITAB. DoD Components shall submit the SEPs to the Director, SSE, at least 30 days before the scheduled DAB/ITAB milestone review.

3. SYSTEMS ENGINEERING LEADERSHIP. Each PEO, or equivalent, shall have a lead or chief systems engineer on his or her staff responsible to the PEO for the application of systems engineering across the PEO's portfolio of programs. The PEO lead or chief systems engineer shall:

a. Review assigned programs' SEPs and oversee their implementation.

b. Assess the performance of subordinate lead or chief systems engineers assigned to individual programs in conjunction with the PEO and PM.

4. TECHNICAL REVIEWS. Technical reviews of program progress shall be event-driven and conducted when the system under development meets the review entrance criteria as documented in the SEP. They shall include participation by subject matter experts who are independent of the program (i.e., peer review), unless specifically waived by the SEP approval authority as documented in the SEP.

5. CONFIGURATION MANAGEMENT. The PM shall use a configuration management approach to establish and control product attributes and the technical baseline across the total system life cycle. This approach shall identify, document, audit, and control the functional and physical characteristics of the system design; track any changes; provide an audit trail of program design decisions and design modifications; and be integrated with the SEP and technical planning. At completion of the system level Critical Design Review, the PM shall assume control of the initial product baseline for all Class 1 configuration changes.

6. ESOH. The PM shall integrate ESOH risk management into the overall systems engineering process for all developmental and sustaining engineering activities. As part of risk reduction, the PM shall eliminate ESOH hazards where possible, and manage ESOH risks where hazards cannot be eliminated. The PM shall use the methodology in MIL-STD-882D, "DoD Standard Practice for System Safety" (Reference (bz)). PMs shall report on the status of ESOH risks and acceptance decisions at technical reviews. Acquisition program reviews and fielding decisions shall address the status of all high and serious risks, and applicable ESOH technology requirements. Prior to exposing people, equipment, or the environment to known system-related ESOH hazards, the PM shall document that the associated risks have been accepted by the following acceptance authorities: the CAE for high risks, PEO-level for serious risks, and the PM for medium and low risks. The user representative shall be part of this process throughout the life cycle and shall provide formal concurrence prior to all serious- and high-risk acceptance decisions.

a. Programmatic ESOH Evaluation (PESHE). The PM for all programs, regardless of ACAT level, shall prepare a PESHE which incorporates the MIL-STD-882D process and includes the following: identification of ESOH responsibilities; the strategy for integrating ESOH considerations into the systems engineering process; identification of ESOH risks and their status; a description of the method for tracking hazards throughout the life cycle of the system; identification of hazardous materials, wastes, and pollutants (discharges/emissions/noise) associated with the system and plans for their minimization and/or safe disposal; and a compliance schedule covering all system-related activities for the NEPA (sections 4321-4347 of Reference (ac) and Reference (ad)). The Acquisition Strategy shall incorporate a summary of the PESHE, including the NEPA/E.O. 12114 (Reference (ad)) compliance schedule.

b. NEPA/E.O. 12114. The PM shall conduct and document NEPA/E.O. 12114 analyses for which the PM is the action proponent. The PM shall provide system-specific analyses and data to support other organizations' NEPA and E.O. 12114 analyses. The CAE (or for joint programs, the CAE of the Lead Executive Component) or designee, is the approval authority for system-related NEPA and E.O. 12114 documentation.

c. Mishap Investigation Support. PMs will support system-related Class A and B mishap investigations by providing analyses of hazards that contributed to the mishap and recommendations for materiel risk mitigation measures, especially those that minimize human errors.

7. CORROSION PREVENTION AND CONTROL. As part of a long-term DoD corrosion prevention and control strategy that supports reduction of total cost of system ownership, each ACAT I program shall document its strategy in a Corrosion Prevention Control Plan. The Plan shall be required at Milestones B and C. Corrosion considerations shall be objectively evaluated throughout program design and development activities, with trade-offs made through an open and transparent assessment of alternatives.

8. MODULAR OPEN SYSTEMS APPROACH (MOSA). Program managers shall employ MOSA to design for affordable change, enable evolutionary acquisition, and rapidly field affordable systems that are interoperable in the joint battle space.

9. DATA MANAGEMENT AND TECHNICAL DATA RIGHTS

a. Program Managers for ACAT I and II programs, regardless of planned sustainment approach, shall assess the long-term technical data needs of their systems and reflect that assessment in a Data Management Strategy (DMS). The DMS shall:

(1) Be integrated with other life-cycle sustainment planning and included in the Acquisition Strategy;

(2) Assess the data required to design, manufacture, and sustain the system, as well as to support re-competition for production, sustainment, or upgrades; and

(3) Address the merits of including a priced contract option for the future delivery of technical data and intellectual property rights not acquired upon initial contract award and shall consider the contractor's responsibility to verify any assertion of restricted use and release of data.

b. The DMS shall be approved in the context of the Acquisition Strategy prior to issuing a contract solicitation.

10. IUID. To enhance life-cycle management of assets in systems acquisition and sustainment, and to provide more accurate asset valuation, all PMs shall plan for and implement IUID to identify and track applicable major end items, configuration-controlled items, and Government-furnished property. IUID planning and implementation shall be documented in an IUID Implementation Plan and summarized in the program's SEP (Reference (ao)) and DoD Directive 8320.03 (Reference (ca)).

11. SPECTRUM SUPPORTABILITY. For all electromagnetic spectrum-dependent systems, PMs shall comply with U.S. and host nation spectrum regulations. They shall submit written determinations to the DoD Component CIO or equivalent that the electromagnetic spectrum necessary to support the operation of the system during its expected life cycle is, or will be,

available (Reference (aq)). These determinations shall be the basis for recommendations provided to the MDA at the milestones defined in Tables 2-1, 2-2, and 3 in Enclosure 4 of this Instruction.