

**Department of the Army  
Pamphlet 70-3**

**Research, Development, and  
Acquisition**

# **Army Acquisition Procedures**

**Headquarters  
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**UNCLASSIFIED**

# ***SUMMARY of CHANGE***

DA PAM 70-3  
Army Acquisition Procedures

This mandated revision, dated 17 September 2018—

- o Implements Army Directive 2017-22, Implementation of Acquisition Reform Initiatives 1 and 2, dated 12 September 2017 (chap 9).
- o Replaces Manpower and Personnel Integration with Human Systems Integration (throughout).
- o Replaces the System Safety Management Plan with the Human Systems Integration Plan (throughout).

## Research, Development, and Acquisition Army Acquisition Procedures

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**History.** This publication is a mandated revision. The portions affected by this mandated revision are listed in the summary of change.

**Summary.** This pamphlet provides discretionary guidance on materiel acquisition management. It is to be used with DODD 5000.01, DOD I 5000.02, and AR 70–1. It contains information relevant to research, development, and acquisition, and life cycle management of Army materiel to satisfy approved Army requirements. This revision adds clothing and individual equipment information and procedures for Configuration Steering Boards. It replaces type classification and materiel release information and updates acquisition program baseline, terminology, and organizational information.

**Applicability.** This pamphlet applies to the Regular Army, the Army National Guard/Army National Guard of the United States, and the U.S. Army Reserve, unless otherwise stated. Also, it applies to personnel involved in research, development, acquisition, and support of materiel items and systems.

**Proponent and exception authority.** The proponent of this pamphlet is the Assistant Secretary of the Army (Acquisition, Logistics and Technology). The proponent has the authority to approve exceptions or waivers to this pamphlet that are consistent with controlling law and regulations. The proponent may delegate this approval authority, in writing, to a division chief within the proponent agency or its direct reporting unit or field operating agency, in the grade of colonel or the civilian equivalent. Activities may request a waiver to this regulation by providing justification that includes a full analysis of the expected benefits and must include formal review by the activity's senior legal officer. All waiver requests will be endorsed by the commander or senior leader of the requesting activity and forwarded through their higher headquarters to the policy proponent. Refer to AR 25–30 for specific guidance.

**Suggested improvements.** Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to the Office of the Assistant Secretary of the Army (Acquisition, Logistics and Technology), 2800 S. Clark St. (SAAL–PA), Suite 500, Arlington, VA 22202.

**Committee management.** AR 15–39 requires the proponent to justify establishing/continuing committee(s), coordinate draft publications, and coordinate changes in committee status with the Office of the Administrative Assistant to the Secretary of the Army, Special Programs Directorate, 9301 Chapek Road, Building 1458, Fort Belvoir, VA 22060–5527. Further, if it is determined that an established "group" identified within this regulation later takes on the characteristics of a committee as found in AR 15–39, then the proponent will follow AR 15–39 requirements for establishing and continuing the group as a committee.

**Distribution.** This pamphlet is available in electronic media only and is intended for the Regular Army, the Army National Guard/Army National Guard of the United States, and the U.S. Army Reserve.

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\*This publication supersedes DA Pam 70–3, dated 11 March 2014.

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## **Glossary**



# Chapter 1

## Acquisition Management Process

### Section I

#### General

##### 1–1. Purpose

*a.* This pamphlet provides Army acquisition procedures for all aspects of the materiel acquisition process. In addition to covering Army implementation of the Department of Defense (DOD) 5000-series acquisition guidance, the pamphlet provides Army unique procedures used in the materiel acquisition process.

*b.* Department of Defense and the Army leadership encourage tailoring and streamlining all acquisitions consistent with statutory and federal regulatory requirements. This pamphlet is designed to provide guidance in enough detail to facilitate the exercise of discretion and prudent business judgment; to structure a tailored, responsive, and innovative acquisition; and give the materiel developer (MATDEV) the flexibility to manage his program and accept reasonable risks. Tailoring should result from discussions between the MATDEV, the combat developer, and the milestone decision authority.

##### 1–2. References and forms

See appendix A.

##### 1–3. Explanation of abbreviations and terms

See the glossary.

### Section II

#### Army acquisition

##### 1–4. Applicability

*a.* The information in this pamphlet applies to acquisition systems development, both weapon systems and Automated Information Systems (AISs). It includes but is not limited to weapon systems; command, control, communications, and computers/information technology systems; national security systems; special access programs (unless specifically excepted per program charter); computer resources integral to those items or systems; system and nonsystem training aids, devices, simulations, and simulators; embedded training; embedded testing; instrumentation, targets, and threat simulators; and clothing and individual equipment. The information applies to command, control, communications, and computers/information technology systems where the Army is the executive agent for another organization or Service or where a command, control, communications, and computers/information technology system is developed cooperatively with other governments unless such governments can assure their compliance with published U.S. Army acquisition policies and procedures.

*b.* Unless specifically excluded, the procedures in this pamphlet apply to all acquisition categories (ACATs) I through III, including highly sensitive classified acquisition programs, automated information systems, and clothing and individual equipment.

*c.* The portions of this pamphlet pertaining to the Army's acquisition, logistics, and technology workforce management apply to Active Army, Department of the Army civilians, the Army National Guard of the United States, and Army Reserve personnel serving in designated acquisition positions.

*d.* The following items are excluded from the purview of this pamphlet: materiel requirements for the U.S. Army Civil Works Program except for information technology; functional medical clothing and equipment listed in CTA 8–100; those distinctive articles of clothing and insignia worn and used by the U.S. Corps of Cadets at the U.S. Military Academy; centrally procured heraldic items in the initial and supplemental clothing allowances (CTA 50–900); other items as determined by Headquarters, Department of the Army and so directed after proper Army Staff coordination; medical materiel and information systems that support fixed facility tables of distribution and allowances health care missions within the Defense Health Program, which will be managed under Army Regulation 40–61 and Army Regulation 25–1; and all Service contracts (the procedures contained at Army Federal Acquisition Regulation Supplement (AFARS) Subpart 5137.5, entitled, "Management and Oversight of Service Contracts," are to be followed).

e. In the case of conflicting guidance, AR 70–1 takes precedence over the discretionary information contained in this pamphlet. If there is conflicting guidance pertaining to contracting, the Federal Acquisition Regulation (FAR), Defense FAR Supplement (DFARS), and/or Army FAR Supplement (AFARS) take precedence over this pamphlet.

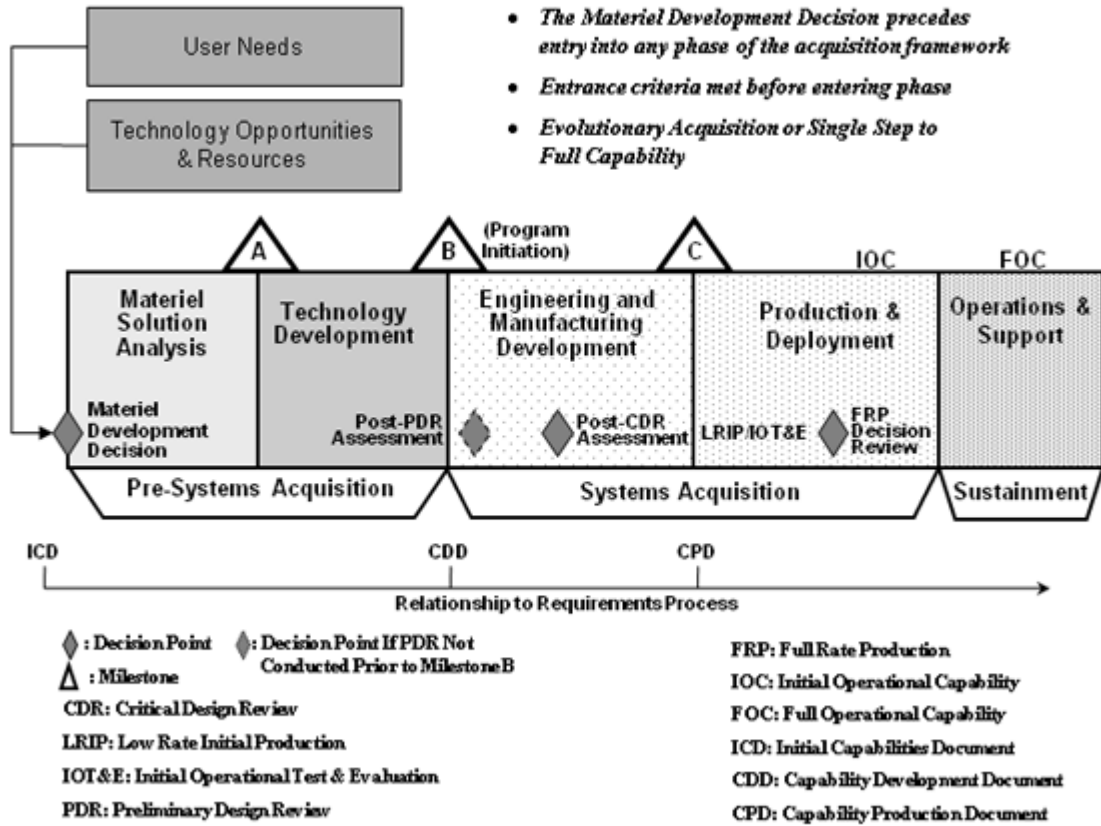


Figure 1–1. Defense acquisition management framework

### 1–5. Overview

a. The Defense Acquisition System is designed to provide effective, suitable, survivable, affordable, and timely systems to the warfighter in the shortest practical time. It is governed by flexibility, responsiveness, and innovation concurrently satisfying user requirements with measurable improvements to mission capability and operational support in a timely manner and at a fair and reasonable price. Figure 1–1 depicts the major milestones, activities, and phases of the Defense acquisition management framework. A logical structure of cost, performance, schedule, and supportability objectives mutually agreed to by the program/project/product manager (PM), combat developer (CBTDEV), and the milestone decision authority (MDA) and documented in the acquisition program baseline (APB) is key to the success of any acquisition program.

b. The Defense acquisition management framework is divided into three activities: Pre-Systems Acquisition, Systems Acquisition, and Sustainment. Activities are divided into phases (for example, Engineering and Manufacturing Development) and phases into work efforts (for example, Integration System Design and System Capability and Manufacturing Process Demonstration).

c. The DODI 5000.02 contains a full discussion of the Defense acquisition management framework.



## **1–6. Categories of acquisition programs and milestone decision authority**

*a.* The criteria for determining a program’s ACAT is found in Army regulation (AR) 70–1, paragraph 3–2. Changes to ACAT level require approval by the Army acquisition executive (AAE). (The AAE is the Assistant Secretary of the Army (Acquisition, Logistics and Technology) (ASA (ALT)). Requests to change an ACAT are prepared by the program executive officer (PEO) or direct reporting PM and sent by memorandum through the Director, Acquisition and Industrial Base Policy (SAAL–PA), ASA (ALT), 2511 S. Jefferson Davis Hwy., Arlington, VA 22202–3911, to the AAE. The Acquisition and Industrial Base Policy Directorate will staff the ACAT change request with appropriate Headquarters, Department of the Army (HQDA) agencies. The request for change should provide at a minimum:

- (1) Brief program description.
- (2) Rationale for change.
- (3) Current MDA and whether the MDA will change.
- (4) Phase of development in terms of the acquisition model.
- (5) Level of program risk (PM determination), to include an explanation for the risk of maturing critical technologies identified by the PM.
- (6) Program funding, including prior-year funding spent, current program objective memorandum (POM) funding by year, and funding-to-completion.

*b.* The MDA for ACAT I and IA programs is governed by DODI 5000.02. In accordance with AR 70–1, chapter 1, the AAE designates all ACAT II and III program MDAs whether newly established or resulting from changes to previously assigned ACAT. New acquisition programs (sometimes referred to as “program new starts”) receive MDA designation as part of the program initiation staffing process.

*c.* Requests for MDA change are sent by memorandum to Director, Acquisition and Industrial Base Policy (SAAL–PA), ASA (ALT), 2511 S. Jefferson Davis Hwy., Arlington, VA 22202–3911. The request for MDA change should provide the same basic information outlined in paragraphs 1–6*a*(1) through 1–6*a*(6). Examples of when a MDA change is warranted include change in ACAT level or when a program transfers to a new organization (procedures are covered later in the pamphlet). The Acquisition and Industrial Base Policy Directorate will staff the MDA change request with appropriate HQDA agencies and will prepare the MDA designation memorandum for the AAEs signature.

## **1–7. Evolutionary acquisition**

*a.* Evolutionary acquisition is the preferred DOD approach for rapid acquisition of mature technology to satisfy operational needs. Evolutionary acquisition strategies define, develop, and produce/deploy an initial, militarily useful capability (“Increment 1”). Evolutionary acquisition strategies are based on proven technology, time-phased or emerging requirements, projected threat assessments, and demonstrated manufacturing capabilities, and include plans for subsequent development and production/deployment increments beyond the initial capability over time (Increments 2, 3, and beyond). Implementation of evolutionary acquisition involves using either the Evolutionary Development or Single Step Development approach as defined in DODI 5000.02.

*b.* The scope, performance capabilities, and timing of increments beyond the initial capability are based on continuous communications among the requirements, acquisition, intelligence, logistics, test and evaluation (T&E), science and technology (S&T), and budget communities. In planning evolutionary acquisition strategies, PMs strike an appropriate balance among key factors, including the urgency of the operational requirement; the maturity of critical technologies; support capability of the industrial base; and the interoperability, supportability, and affordability of acquisition alternatives.

*c.* Sustainment strategies must evolve and be refined throughout the life cycle to support overall acquisition strategies, particularly during development of subsequent increments in an evolutionary strategy.

*d.* See DODI 5000.02 for additional requirements and approaches to implement evolutionary acquisition.

## **Section III**

### **Modifications**

#### **1–8. General modification provisions**

A modification is the alteration, conversion, or modernization of a configuration item or an end item that changes or improves its original purpose or operational capacity in relation to effectiveness, efficiency, reliability, or safety. This includes conversions, field fixes, retrofits, remanufacture, redesign, upgrades, engineering changes, computer re-hosting, software revisions, System Enhancement Program (SEP), Service Life Extension Program (SLEP), system improvement program (SIP), technology insertion opportunities, and continuous technology refreshment (CTR). One method to perform modifications to configuration items after that item is accepted into the Army inventory (signed DD Form 250 (Material Inspection and Receiving Report)) is the modification work order (MWO) (refer to AR 700–142 for additional information)

or equivalent contractor installation procedures when the item is under contractor field support. A configuration item is an aggregation of hardware, firmware, computer software, or any other discrete portions which satisfies an end use function and which the Government designates for separate configuration management. Any item required for logistics support and designated for separate procurement is a configuration item. Configuration items are normally identified at the major end item level; however, the items may be broken down into piece parts.

### **1–9. Modification management**

The management level for an approved modification depends on whether the modification requires a change to the ACAT level or type classification of the system/end item to be modified. For management purposes, any modification that meets Major Defense Acquisition Program (MDAP) or Major Automated Information System (MAIS) criteria due to its cost and complexity is considered a separate acquisition effort. Modifications to programs in production that do not meet or exceed the MDAP or MAIS criteria thresholds are considered part of the program being modified. Such modifications may become part of the program being modified as a program increment only if the program is still in production. Incorporation of a modification into a program in production could cause a reportable deviation from the approved APB. If a reportable breach occurs, the PM must submit the appropriate notifications and reports (see chap 8). For programs no longer in production, the modification is considered a separate acquisition effort and is planned and executed accordingly. See AR 750–10 for additional requirements and guidance on program modifications.

## **Section IV**

### **Areas of special coordination/consideration**

#### **1–10. Special coordination**

*a. Introduction.* This section provides a checkpoint for special coordination considerations that should be addressed during system development. A quick look at specific subject areas is provided. The applicable subject areas should be examined and coordination established early in the acquisition process. The following paragraphs also identify organizations where special expertise is available to provide assistance to the MATDEV.

*b. Topics.* The following Special Coordination considerations are discussed below:

- (1) Night vision, electro-optics, and electronic sensors.
- (2) Standardization of mobile electric power generating sources and environmental control units.
- (3) Training support products to include training aids, devices, simulators, and simulations (TADSS).
- (4) Batteries.
- (5) Test, measurement, and diagnostic equipment (TMDE).
- (6) Army Heavy Metals Office.
- (7) Instrumentation, targets, and threat simulators.
- (8) Nuclear, biological and chemical (NBC) defense and survivability.
- (9) Explosive ordnance disposal (EOD).
- (10) Command, control, communications, computers and intelligence (C4I) software developments and life cycle support.
- (11) Space and terrestrial communications.
- (12) Radiation sources.
- (13) Industrial Base and Diminishing Manufacturing Sources and Materiel Shortages (DMSMS).
- (14) International traffic in arms regulations export and import control of MATDEV defense articles and services.
- (15) Soldier-Borne equipment.
- (16) Design for ammunition demilitarization.
- (17) Environment, Safety and Occupational Health.
- (18) Spectrum supportability assessment.

*c. Night vision, electro-optics, and electronic sensors.* In order to capitalize on the Army's investments and focus efforts, the Communications-Electronics Life Cycle Command (C–E LCMC) Night Vision and Electronic Sensors Directorate should be included as an active member of the materiel development team on programs that employ the technologies of night vision and electro-optics, and electronic sensors. Point of contact is Director, Night Vision and Electronic Sensors Directorate, (AMSEL–RD–NV–D), 10221 Burbeck Road, Fort Belvoir, VA 22060–5806.

*d. Standardization of mobile electric power generating sources and environmental control systems.* In order to reduce acquisition, operation and support costs, enhance Inter-Service interoperability, and standardize the electrical output characteristics of mobile power sources; it is DOD policy to standardize mobile electric power generating sources (DOD Directive (DODD) 4120.11). Similarly, the Army is committed to using a standard family and environmental control units

(ECUs). In accordance with the DODD 4120.11 and AAE Policy Memo 90–3, MATDEVs of end items, systems, shelters or vehicle systems will coordinate with PM Mobile Electric Power for electric generating sources at the following address: DOD Project Manager-Mobile Electric Power, 10205 Burbeck Road, Suite 105, Fort Belvoir, VA 22060. MATDEVs requiring ECUs will coordinate with Product Manager-Mobile Electric Power for the Family of Improved ECUs or the Weapon System Manager at U.S. Army Communications-Electronics Command (AMSEL–LC–CCS–G–EC), Fort Monmouth, NJ 07703–5000, for all other ECUs.

*e. Training support products to include training aids, devices, simulators, and simulations (TADSS).* All training support products, including training devices and embedded training (ET) capabilities supporting and unique to a major system acquisition will be documented and reviewed with the parent weapon system and will be in place in time to support the introduction of those systems for operational testing and fielding. TADSS are categorized as either system or non-system in accordance with AR 350–38.

(1) Types and quantities of system TADSS should be consistent with the approved basis of issue plan (BOIP) or Distribution Plans as identified in the supporting capabilities document and system training plan (STRAP). For TADSS that do not require a formal BOIP, the proponent training developer (TNGDEV) in conjunction with the MATDEV will develop a distribution plan that addresses: quantity, Order of Issue, and Unit designation. The TADSS distribution plans will be approved by TRADOC Deputy Chief of Staff for Operations and Training.

(2) Types and quantities of non-system TADSS should be as identified by the TNGDEV/MATDEV in conjunction with the CBTDEV and documented in the supporting materiel requirements document and STRAP.

(3) Weapon system training devices should be identified in the Integrated Program Summary (included in the Program Life cycle Cost Estimate), in accordance with DODI 5000.02. Those training devices that are not included in a weapon system acquisition should be identified and justified in relation to a specific training program or course. The PM ensures that all training requirements identified and documented in the capabilities document and STRAP will be supported. The MATDEV, in conjunction with the TNGDEV, should initiate coordination early in the Pre-Systems Acquisition activities of the system with the PEO for Simulation, Training, and Instrumentation (STRI) (SFAE–STRI–CSG), 12350 Research Parkway, Orlando, FL 32826–3276. The CBTDEV in conjunction with the proponent TNGDEV should coordinate with the U.S. Army Training Support Center (ATIC–OPS), Fort Eustis, VA 23604–5166.

*f. Batteries.* Maximum use should be made of standard, nomenclature batteries and battery charging systems to satisfy Army applications. Preference should be given to those standard commercial batteries and battery charging systems that are available in the consumer marketplace, as opposed to those that have military only applications. Consider the size, weight, and the stockage level needed to support the Soldier and weapon system in the performance of military operations. Also consider battery disposal during the design process. Battery recovery and disposal is a large source of impact on installation solid/hazardous waste management. Implementation of battery/battery charging system standardization, eliminating the proliferation of new configurations, and taking actions to reduce battery related operating and support costs should be supported by all activities subject to AR 70–1.

(1) Life cycle costs related to the selection of a given battery chemistry/configuration should be considered when proposing a power source for an end item. Life cycle costs can be minimized by selecting a standard battery configuration available in the consumer marketplace, using standard nomenclature military batteries, using rechargeable batteries, and selecting a battery which has no hazardous/toxic materials. Reducing the operating and support costs related to the use of batteries should be a consideration in the design of all Army requirements that use any form of battery power. Examples of minimizing battery costs through end item design include using power management techniques, optimizing design to reduce power requirements, incorporating a battery state of charge technology, and designing in the capability to readily use external power sources such as those available from a vehicle.

(2) The MATDEV should coordinate the requirement for the development, assignment, acquisition, and usage of batteries and battery charging systems with the U.S. Army Materiel Command’s (AMCs) Power Sources Center of Excellence (PSCOE) at Commander, C–E LCMC (AMSEL–LC–P–AMC), Fort Monmouth, NJ 07703, prior to each milestone review. PSCOE will further coordinate with other AMC/DA/DOD organizations. For information on commercial and military standard batteries and charging systems including the Army Portable Power Sources program, refer to the PSCOE website at AMC Battery Management Office (<https://lrteams.monmouth.army.mil/ipm>).

*g. Test, measurement, and diagnostic equipment.* Identification of requirements and acquisition of TMDE must be in line with the Army’s standardization objectives. Those objectives are aimed at controlling the proliferation of system-specific test equipment, reducing operating and support costs, and providing modern and technologically capable equipment to support a wide range of Army test and diagnostic requirements. AR 750–43 provides guidance on requirements determination and selection of TMDE; requires use of standard automatic test equipment (ATE) and general-purpose TMDE; establishes the waiver approval requirement for use of nonstandard test equipment; and addresses other TMDE considerations and requirements such as application of built-in test/built-in test equipment, test program sets, and calibration and repair to include embedded instrumentation (embedded diagnostics, prognostics, testing and training). MATDEVs

must coordinate TMDE requirements with and submit Calibration and Measurement Requirements Summary (CMRS) per MIL-STD-1839D to PM TMDE and the U.S. Army TMDE Activity (USATA) prior to Milestones B and C and at the Full Rate Production (FRP) Decision Review. The PM must continue coordination throughout the supported system's life cycle. Acquisition of TMDE and ATE by or for an Army activity must coordinate with PM TMDE and USATA prior to processing of contractual requirements documentation. Points of contact are Product Manager, TMDE (SFAE-CSS-FT-T), Redstone Arsenal, AL 35898-5000 and Director, U.S. Army TMDE Activity (AMSAM-TMD), Redstone Arsenal, AL 35898-5000.

*h. Army Heavy Metals Office.* The Army Heavy Metals Office (HMO) works with the PEO Ammunition, Armament Research Development and Engineering Center (ARDEC), AMC major subordinate command (MSC) Environmental Offices, and the Environmental Support Office to ensure Army heavy metal decisions and actions are thoroughly coordinated, well planned, and executed. The HMO provides guidance and exercises appropriate oversight of life cycle aspects related to heavy metal selection (for example, cost, material enhancement, research and development, production, testing, restoration, processing, storage, demilitarization) for metals such as beryllium, cobalt, depleted uranium, lead, molybdenum, nickel, tantalum, tungsten, and their alloys. The HMO will support PEO Ammunition systems and other systems upon request in utilizing the metals identified above in development and implementation of environment, safety and occupational health (ESOH) risk management activities. The HMO will then provide comments to the MDA regarding the adequacy of the risk management approach. Accordingly, MATDEVs may coordinate heavy metal material use decisions and issues with the Army Heavy Metals Office, Building 1, Picatinny Arsenal, NJ 07806-5000.

*i. Instrumentation, targets, and threat simulators.* The project manager for instrumentation, targets, and threat simulators (PM ITTS) has the mission to ensure the Army has major instrumentation, targets, and threat simulators required for test and evaluation. The PM ITTS also has the mission to ensure that the Army has the targets required for training and mission rehearsal. Inherent in these missions is to ensure that weapon systems under test can interface and function directly with the Army's developmental and operational test instrumentation. PM ITTS should be included as a member of the acquisition team where requirements exist for major instrumentation, targets or threat simulators. Point of contact is the Project Manager for Instrumentation, Targets and Threat Simulators (SFAE-STRI-PMITTS), 12350 Research Parkway, Orlando, FL 32826-3276.

*j. Nuclear, biological and chemical defense, and survivability.* The AMC, Deputy Chief of Staff for Chemical/Biological Matters is the Executive for NBC Defense Research, Development, and Acquisition (RDA) (non-medical). Because of the unique importance of providing defense against residual effects of NBC materials to all Soldiers operating on the battlefield, the Executive for NBC Defense RDA coordinates integration of NBC defense equipment and contamination survivability technologies across all major subordinate commands and program elements. A balance of NBC defense systems is needed to achieve the doctrinal goals for avoidance, protection and decontamination. Similarly, a balance of NBC technologies/materiel is needed to meet international and Army criteria for the elements of hardness, compatibility, and the ability to decontaminate for NBC contamination survivability mandated in the DOD 5000 series. MATDEVs can coordinate their design, development, and T&E efforts with the Executive for NBC Defense RDA to ensure adequate incorporation of NBC defense systems, technologies, and their use in operational procedures. Additionally, the Survivability and Lethality Analysis Directorate (SLAD) is the Army activity charged with maintaining the technical expertise to advise the developmental community on the effects of all threats, including NBC, on Army materiel as well as being the Army focal point for technical survivability support. The Executive for NBC Defense RDA should participate in each major milestone review and also offers consultative assistance on NBC defense readiness and sustainment issues once the item is fielded. MATDEVs may initiate coordination by contacting U.S. Army Materiel Command, Deputy Chief of Staff of Chemical and Biological Matters (AMCCB), Alexandria, VA 22333-0001. Additional assistance is available by contacting Department of the Army, United States Army Nuclear and Chemical Agency (ATNA-CM/NU), 7150 Heller Loop, Suite 101, Springfield, VA 22150-3198.

*k. Explosive ordnance disposal.* The Army PM is responsible to ensure that EOD render safe and/or disposal procedures, publications, and tools, and equipment are available for unexploded ordnance (UXO) including associated weapon systems: aircraft, remotely piloted vehicles, and combat vehicles.

(1) The requirement also includes items that might be identified in accidents, incidents, or field usage as UXO or bombs. Concurrent development of EOD procedures requires an integrated product team (IPT) approach and provides full EOD operational support for all explosive ordnance items or systems.

(2) Concurrent EOD development also ensures availability to Joint Service (Army, Navy, Air Force, and Marine) EOD units 30 days before the materiel release or deployment date of new, modified, or procured ordnance or ordnance systems. This satisfies the DOD Directive on explosive ordnance.

(3) The MATDEV should initiate coordination early, during the preparation and development of materiel capabilities documents, to ensure EOD technical information, validated and verified EOD Render Safe and Disposal Procedures, publications, and tools and equipment are available.

(4) The Army EOD Technology Division Office, located at Research, Development and Engineering Command–Armament Research, Engineering and Development Center (RDECOM–ARDEC), Armaments Engineering and Technology Center (AETC) (AMSRD–AAR–AEX), Picatinny Arsenal, NJ, 07806–5000, will provide guidance and assistance to the proponent ordnance MATDEV concerning EOD concurrent development and achieving EOD Supportability in accordance with AR 75–15.

(5) All Army programs for explosive ordnance including conventional ammunition, smart munitions, missiles, rockets, munitions systems, and other materiel systems with integral explosive devices that are in advanced technology demonstration (ATD), engineering and manufacturing development (EMD), production, or product modification must comply with EOD supportability requirements prescribed in AR 75–15.

(a) Plan, program, integrate, budget, and execute EOD related tasks to ensure EOD supportability for the materiel.

(b) Foreign munitions acquired for testing and evaluation in Army test ranges under Foreign Military Sales, exploitation, comparison T&E, and use will comply with requirements as identified in AR 75–15.

(c) Plan, budget, develop, acquire and field training aids as required by AR 700–127. Certification of the availability of EOD training aids prior to materiel release will be part of the EOD supportability statement issued by the AMC EOD Staff Officer.

(6) To comply with AR 75–15, the MATDEV must obtain an EOD Supportability Statement prior to Type Classification from the EOD Technology Directorate, RDECOM–ARDEC. The point of contact is Commander, U.S. Army RDECOM–ARDEC, EOD Technology Directorate (AMSRD–AAR–AEX), Building 91N, Picatinny Arsenal, NJ 07806–5000. E-mail: amsrd-aar-aex@pica.army.mil; phone DSN 880–7643, commercial 973–724–7643, fax 973–724–5990.

(7) An EOD Supportability Statement will be obtained from the AMC EOD Staff Officer in accordance with AR 700–142 prior to the materiel release of new munitions systems.

*l. Command, control, communications, computers, and intelligence (C4I) software developments and software life cycle support.* In the interest of reducing development, test, and life cycle costs, MATDEVs should coordinate post deployment software support (PDSS) requirements with U.S. Army C–E LCMC Software Engineering Center (SEC) throughout the system acquisition process and continue coordination throughout the supported system’s life cycle. This includes resourcing for common software development, test, operating, maintenance, and support environments. The planning, budgeting, and executing of all mission critical computer resources (MCCR) system software support requirements to be transitioned to the software support activity (SSA) should be coordinated by the MATDEVs with SEC by contacting the U.S. Army C–E LCMC Software Engineering Center (AMSEL–SE–D), Fort Monmouth, NJ 07703–5207.

*m. Space and terrestrial communications.* One of the Army’s communication initiatives is to provide seamless, global, secured, multi-layered communications infrastructure for manned and unmanned elements. The objective is to provide complete battlespace awareness, support to the Army’s Combined Arms and cross service command and control structure, interface to our Coalition Forces, and assurance of minimal delays from sensors to shooters. Therefore, any development program that incorporates communications capability internally to that system or interfaces to other communications systems; providing voice, data, video, or imagery; should contact the Deputy Director, Space and Terrestrial Communications Directorate (AMSEL–RD–ST–DD), Fort Monmouth, NJ 07703–5000.

*n. Radiation sources.* The policy for development, acquisition, and use of radiation sources is described in AR 385–10. The Army Radiation Staff Officer, HQDA (DACS–SF), 200 Army Pentagon, Washington, DC 20310–0200, has staff oversight of the Army Radiation Safety Program. The MATDEV will coordinate the development, acquisition, and use of radioactive material and devices that can generate x-rays, lasers, high intensity optical radiation sources, or radio frequency radiation sources with the Army Radiation Safety Officer. In addition, the use of radioactive material can require the legal need to apply for either a Nuclear Regulatory Commission license or an Army Radiation Authorization. Coordinate procurement of radiation items for foreign governments with AMC (AMCPE–SF). Radiation items will meet the applicable U.S. standards or the country of use applicable standards. The coordination for development, acquisition, and use of radioactive material or radiation source includes:

(1) Conducting a radiation protection study to determine the exposure to service members and to determine needed protective measures to protect service members from unnecessary exposure to radiation.

(2) Requesting AMC (AMCSF) to determine if a Nuclear Regulatory Commission license or Army Radiation Authorization is needed.

(3) Supplying an example of each item containing radioactive material or that emit x-rays to the Edwin R. Bradley Radiological Laboratories (ATSC–CMB–B), 401 Engineering Loop, Suite 1823, Fort Leonard Wood, MO 65473 to support training of the Army radiation safety officers.

(4) Requesting a study of all occupational exposure to ionizing radiation due to fielded items with Commander, U.S. MEDCOM, (MCHO–CL–W), 2050 Worth Road., Suite 10, Fort Sam Houston, TX 78234–6010.

(5) Requesting a study of all training/combat lasers and other potentially hazardous optical radiation sources from Commander, U.S. Army Center for Health Promotion and Preventive Medicine, (MCHB-TS-OLO), 5158 Blackhawk Road, Aberdeen Proving Ground, MD 21010-5403.

(6) Requesting a study of all radio frequency radiation sources (such as radars and radios) from Commander, U.S. Army Center for Health Promotion and Preventive Medicine (MCHB-TS-ORF), 5158 Blackhawk Road, Aberdeen Proving Ground, MD 21010-5403.

(7) Providing a life cycle plan for the use, tracking, and disposal of radioactive items or radiation producing items.

*o. Industrial base and diminishing manufacturing sources and materiel shortages.*

(1) The PMs apply knowledge gained from industry when developing acquisition strategies; however, with the exception of the PMs support contractors, industry will not directly participate in acquisition strategy development. As a matrix manager, the PEOs will establish industrial base support agreements (IBSAs) with applicable major subordinate command(s) in AMC. The DOD DMSMS Guidebook and AR 700-90 identify the relative responsibilities for PEOs/PMs and AMC.

(2) The Headquarters, U.S. Army Materiel Command, Deputy G-3 for Industrial Operations, Industrial Base Capabilities Division (AMCOPS-IEB), 9301 Chapek Road, Fort Belvoir, VA 22060-5527 exercises Army responsibility for the DMSMS program. AR 700-90 identifies policy for PMs concerning the DMSMS program.

*p. International traffic in arms regulations export and import control of MATDEV defense articles and services.*

(1) Section 38 of the Arms Export Control Act (Title 22, United States Code, Section 2778 (22 USC 2778)) authorizes the President to control the export and import of defense articles and defense services. The statutory authority of the President to control the aforementioned exports and imports was delegated to the Secretary of State by Executive Order 11958, as amended, and is administered by the Deputy Assistant Secretary for Defense Trade Controls and Managing Director of Defense Trade Controls, Bureau of Political-Military Affairs. The International Traffic in Arms Regulations (ITAR) governs the export and import of defense articles and defense services.

(2) For specific guidance in regard to licenses and exemptions for RDA related programs, agreements and/or activities, contact the Office of the Deputy Assistant Secretary of Defense for Defense Exports and Cooperation (SAAL-NP), 703-588-6579.

*q. Soldier-borne equipment.* In order to minimize the continued overloading of the Soldier with non-integrated and/or non-interoperable capabilities, any new or updated system/equipment to be worn, carried, interface with or consumed by the Soldier must include PEO Soldier (or their designated representative) as an active member of the material development team. This is to ensure that the new/revised equipment being developed or produced does not interfere with existing Soldier-borne systems, Soldier-as-a System requirements, or development systems with approved ICDs. Point of contact is PEO Soldier (SFAE-SDR), 5901 Putnam Road, Building 328, Fort Belvoir, VA 22060-5422.

*r. Design for ammunition demilitarization.* The Product Manager for Demilitarization (PM-Demil), SFAE-AMO-JS-D, Buffington Road, Building 171 North, Picatinny Arsenal, NJ 07806-5000, has the Single Manager for Conventional Ammunition (SMCA) mission responsibility for demilitarization of all conventional ammunition including tactical missiles. In order to proactively minimize the DODs future demilitarization liability, assure complete life cycle management, and apply proper systems engineering, it is essential that demilitarization design requirements be an integral part of the planning, decision making, and systems engineering process for all new or modified ammunition items from conception to final acceptance of the end item. In order to effectively design for ammunition demilitarization, it is important that ammunition designs be influenced to enable easy disassembly, allow cost effective recovery of materials and components for reuse or recycle, include modular components, provide for efficient and low cost demilitarization processes other than open burning and open detonation, contain minimal amounts of environmentally impacting materials, and assure safety of operators during the demilitarization process. Design for ammunition demilitarization should be coordinated through the Demilitarization Technology R&D Program for Conventional Ammunition Energetics, Warheads and Environmental Technology Division, Armaments Engineering and Technology Center, ARDEC, Building 322, Picatinny Arsenal, NJ 07806-5000.

*s. Environment, safety, and occupational health.* The ESOH provisions of DODI 5000.02 are required for all ACAT systems and may not be waived. The performance of ESOH actions by the program to meet these provisions is demonstrated through the development of the programmatic ESOH evaluation (PESHE) as well as the National Environmental Policy Act (NEPA) documentation. The Environmental Support Office (ESO) is directly responsible to the Deputy Assistant Secretary of the Army for Procurement (SAAL-ZP) to support the Acquisition Community in addressing ESOH risk management considerations. Accordingly, MATDEVs may request support and should coordinate ESOH risk management activities with the Environmental Support Office at Department of the Army (SAAL-PE) (10th Floor), 2511 South Jefferson Davis Hwy., Arlington VA 22202.

*t. Spectrum supportability assessment.* The development and employment of spectrum-dependent systems requires certification of spectrum supportability per DODI 4650.01 and AR 5-12. Funds for the acquisition, research, development,

production, purchase, lease, or use of spectrum dependent systems will not be released by the obligating authority until a DD Form 1494 (Application for Equipment Frequency Allocation) has been approved. A close working relationship with the Army Spectrum Manager (Chief Information Officer (CIO)/G-6) is vital to ensuring proper assessment of usable spectrum for an acquisition effort.

## **1-11. Assigning popular names**

### *a. Introduction and purpose.*

(1) This serves as a guide to the assignment and use of popular names for major items of equipment. Assignment of popular names should not be confused with the use of code words, nicknames, or short titles, as prescribed in AR 380-5, appendix H.

(2) A popular name is assigned to a major item of equipment for use in publicizing the item and for ready reference identification, for example KIOWA WARRIOR (OH-58D/Army Helicopter Improvement Program), AVENGER (Pedestal Mounted Stinger). Popular names should reflect functional characteristics and the Department of the Army's (DAs) progress toward modernization of its concepts of warfare.

(3) Popular names for Army equipment and aerospace vehicles should be requested when the system reaches production or has immediate prospects of going into the inventory (see AR 70-50 for naming aerospace vehicles). An approved popular name should not be changed unless there are compelling reasons (conformance with this guidance is not a compelling reason).

(4) Final approval authority for assignment of popular names for military aerospace vehicles is Office of the Secretary of Defense (OSD) Public Affairs. Approval authority for other Army major items of equipment is the AAE. The AAE can approve exceptions to the suggested categories listed in the paragraphs below.

### *b. Criteria.* Following is general criteria for use in selecting popular names:

(1) Names should appeal to the imagination without sacrifice of dignity, and should suggest an aggressive spirit and confidence in the capabilities of the item. They should suggest mobility, agility, flexibility, firepower, and endurance when these characteristics can be related to the item.

(2) Appropriateness should be judged primarily from the viewpoint of tactical application rather than source or method of manufacture of the item.

(3) When names of persons are proposed, they should connote some association with the qualities and criteria indicated above.

(4) The criteria set forth above form the basis for popular names. Proposed popular names for items in the commodity areas listed below should comply with the suggested categories of names listed below:

(a) Infantry weapons—famous Americans. Example: MACARTHUR.

(b) Field artillery weapons—action nouns. Examples: PALADIN, CONQUEROR, and PEACEMAKER.

(c) Air defense artillery weapons—action nouns. Examples: AVENGER, STINGER, and VIGILANTE.

(d) Tanks—American generals. Examples: ABRAMS and SHERIDAN.

(e) Armored combat vehicles (less tanks)—animals associated with speed. Examples: CHEETAH, COUGAR, and PANTHER.

(f) Antitank and assault weapons—vicious reptiles and insects. Examples: COPPERHEAD, SCORPION, and BUSHMASTER.

(g) Army aircraft—Native American terms and names of Native American tribes and chiefs. Examples: CHINOOK, APACHE, and COMANCHE.

*Note.* DODD 4120.15 and AR 70-50 provide guidance on naming aerospace vehicles. Per DODD 4120.15, only approved mission-design series designators and popular names are used in referencing these aerospace vehicles in official documents and public statements.)

(h) Communications, electronic, and surveillance equipment—words descriptive of the function of the equipment. Examples: LONGBOW, SENTRY, and SCOUT.

(i) Engineer mobility equipment—animals associated with building, construction, industriousness, or strength. Examples: FERRET, BADGER, and BEAVER.

### *c. Requesting a popular name.* The following procedures will be used in requesting a popular name.

(1) The MATDEV will coordinate proposed popular names with the CBTDEV and commanders of other major commands to ensure they have no objections to the proposed names.

(2) The MATDEV should submit a memorandum requesting approval of a popular name for their system to: Headquarters, U.S. Army Materiel Command (AMCCP-P), 9301 Chapek Road, Fort Belvoir, VA 22060-5527 using the sample format at figure 1-2. This request should include three proposed popular names (in order of preference); a brief description of the system and its mission; and a photograph, drawing, or sketch of the system. If appropriate, a brief explanation of the

proposed names may be included with the request. A justification may also be included for the preferred name, if deemed appropriate. If submitting only one name, provide justification. If the item is an aerospace vehicle, the MATDEV must also include information required by AR 70–50.

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*(Use Letterhead Stationary)*

MEMORANDUM FOR HEADQUARTERS, U.S. ARMY MATERIEL COMMAND, ATTN: AMCCP-P,  
9301 CHAPEK RD, FT BELVOIR, VA 22060-5527

SUBJECT: Request for Approval of Popular Name for (name of system)

1. Request approval of popular name for (name of system). Following are proposed popular names in order of priority:

- a. (Priority 1)
- b. (Priority 2)
- c. (Priority 3)

(NOTE: Three proposed names should be submitted. Include a brief definition/description of the names, if appropriate.)

2. Give a brief explanation/justification for a single nomination. If deemed appropriate, include a justification for your first choice.

3. Enclosed is a brief description of the system and its mission. Provide the Mission Design Series (if assigned) and a photo, drawing, or sketch of the item. (Note: This is required for the trademark search.)

4. Point of contact is (name, office symbol, and telephone number).

Encl

Signature Block of  
Requesting Authority

**Figure 1–2. Sample format for requesting a popular name**

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(3) Headquarters, AMC will coordinate proposed names with the Air Force to ensure they are not already in use, and with the HQ, AMC Public Affairs Office concerning possible public relations impact.

(4) When proposed names include the name of a Native American tribe or chief, HQ, AMC should obtain concurrence/approval from the specific tribe to use their name. Additionally, comments may be solicited from the Assistant Secretary for Indian Affairs, Mail Stop 4140, Bureau of Indian Affairs, Department of the Interior, 1849 C Street, NW, Washington, DC 20245.

(5) Headquarters, AMC will ensure a trademark search is conducted to determine if there is any legal objection to the use of the proposed name. The objective of the trademark search is to determine the likelihood of whether the name would cause confusion, cause mistake, or deceive the public with regard to the source or origin of the item of equipment as a result of any good associated with a trademark currently registered with the United States Patent and Trademark Office or any pending application to register a trademark. In addition, the trademark search should determine whether use of the name selected would likely cause dilution of the distinctive quality of any famous mark.

(6) Headquarters, AMC reviews the proposed popular names in accordance with these guidelines and forwards those popular names that meet the established criteria to OASA (ALT) (SAAL–PA), for coordination with the Army staff. SAAL–PA prepares a recommendation and forwards it to the AAE for approval or disapproval.



(7) Headquarters, AMC notifies the MATDEV of their recommendation to OASA (ALT). The OASA (ALT) will notify the MATDEV and HQ, AMC of the AAE decision.

(a) If the AAE disapproves of the popular name, the MATDEV may begin the process again with a different set of proposed popular names. For AAE approved, non-aerospace vehicle popular names, the MATDEV should comply with paragraph (8), below.

(b) For aerospace vehicle popular names, the AAE provides Army-level approval. After Army-level approval, HQ AMC will forward the request to HQ AFMC/LGIS, 4375 Chidlaw Road, Building 262, Room B108, Wright Patterson Air Force Base, OH 45433–5006. Headquarters, AFMC/LGIS will staff the request within the Air Force in accordance with AR 70–50, section E. The OSD Public Affairs (OASD/PA) is responsible for final aerospace vehicle popular name approval or disapproval.

(c) Headquarters, AMC will notify the MATDEV of the OASD/PA decision. If the OASD/PA disapproves the popular name, the MATDEV may begin the process again with a different proposed popular name. If the OASD/PA approves the popular name the MATDEV should comply with paragraph (8), below.

(8) When final approval for a popular name has been received, the MATDEV should consult with the Regulatory Law and Intellectual Property Office, U.S., Army Legal Services Agency at U.S. Army Legal Services Agency, 901 N. Stuart St., Suite 530 (JALS–IP), Arlington, VA 22203, or phone 703–696–8119 to determine if an application should be filed to register the popular name as a trademark with the U.S. Patent and Trademark Office for the appropriate classes of goods.

(9) The MATDEV will then process the approved popular name through command channels and through information channels to provide adequate news media coverage. (HQ AMC, Public Affairs Office, can provide guidance on news releases and publicity for newly approved popular names).

(10) The MATDEV should maintain a file of approved request for popular names submitted through his office.

## Section V

### Program Office and Program Management

#### 1–12. Establishing program/project/product management offices

This paragraph provides the guidance, criteria, organizational structure and process governing management of Army acquisition programs and establishment of a program/project/product management (PM) position with responsibility for managing those programs.

a. *Acquisition program defined.* As used herein, an acquisition program is defined as any directed, funded effort designed to provide a new, improved, or continuing materiel, weapon or information system or service capability in response to an approved need. This applies to a weapon system, automated information system, or any other materiel acquisition that has been referred to centralized management.

b. *General discussion.*

(1) The AAE is the approval authority for designating a program for intensive centralized management by a PM and for establishing the supporting PM office (PMO). For pre-Milestone B projects that do not have a PM designated, upon request from the CBTDEV, the ASA (ALT) Deputy for Acquisition and Systems Management (SAAL–ZS) will designate a PEO that will be responsible for MATDEV requirements prior to Milestone B. This PEO will establish a point of contact to work MATDEV requirements with the CBTDEV. The PEO will ultimately be given the resulting program to manage. This will facilitate early coordination and will also allow for resource planning by the PEO.

(2) The PM, as the HQDA management authority and total life cycle systems manager, manages and executes the total development, acquisition, system integration, and fielding of an assigned program within approved cost, schedule, performance, and support requirements.

(3) The title, “Program Manager,” “Project Manager,” “Product Manager” is used to identify those individuals whose acquisition positions are designated and approved by the AAE. A PM is a HQDA board-selected manager for an acquisition program and may be subordinate to the AAE, a PEO, or another PM. In limited, select cases, a PM may be subordinate to a direct reporting unit (DRU) (for example, Medical Command).

(4) The PM managed programs are categorized as either PEO managed, Direct Reporting PM (DRPM), or Non-PEO managed. A PEO managed program resides within the PEO structure and is managed by a PM subordinate to a PEO. Direct Reporting PM managed programs reside with PMs reporting directly to the AAE. Non-PEO managed programs are the exception and occur on a limited, selective basis. Non-PEO managed programs reside and are managed by PMs subordinate to a DRU.

c. *Guidance.* Centralized management by a PM is mandatory for all acquisition programs regardless of the ACAT. The AAE serves as the MDA for ACAT IC and IAC programs. For ACAT II programs, the AAE determines whether to retain

MDA responsibility or assign the responsibility to a PEO. The AAE generally assigns the MDA for ACAT III programs to PEOs. The MDA is the individual designated to approve entry into the next acquisition phase.

(1) The ACAT I and ACAT IA programs are managed by a PM who reports to the AAE either directly or through a PEO. The Under Secretary of Defense for Acquisition, Technology and Logistics (USD (AT&L)) designates MDAP programs as ACAT ID or IC. The USD (AT&L) or, if delegated, the Assistant Secretary of Defense for Networks and Information Integration (ASD (NII))/DOD CIO designates MAIS programs as ACAT IAM or IAC.

(2) The ACAT II programs are managed by a PM who reports to the AAE directly or through a PEO as designated by the AAE. On a select basis (determined by the AAE), an ACAT II PM may report through a DRU to the AAE.

(3) The ACAT III programs are managed by a PM who reports to a PEO as designated by the AAE. On a select basis (determined by the AAE), an ACAT III PM may report through a DRU to the AAE.

*d. General criteria and factors for establishing a program/project/product management office.* An acquisition program must have approved capabilities documents (initial capabilities document (ICD) and capability development document (CDD) or capability production document (CPD)) and be approaching a milestone decision (usually Milestone B) to be considered for centralized management by a PM. A valid military or civilian authorization must be in place to establish a PMO. In addition, one or more of the following factors will contribute to the decision to establish a PM or assign a program to an existing PM. The criteria and factors are equally applicable to all acquisition programs, whether it is a PM or an Acquisition Command.

(1) Program operation and support cost, when compared to total life cycle equipment costs, are of such magnitude as to warrant centralized management.

(2) Program has significant impact on U.S. military posture.

(3) Program is required to satisfy an urgent requirement or high defense priority.

(4) Program involves unusual organizational complexity, technological advancement, or interface control.

(5) Program presents unusual difficulties that require centralized management.

(6) Program requires extensive interdepartmental, national, or international coordination or support.

(7) Program has significant Congressional, DOD, or Army interest.

*e. Conditions for establishing a program manager.* A program manager (general officer or senior executive service civilian) is designated to manage an acquisition program when one or more of the following conditions exist:

(1) The program requires centralized direction/coordination or two or more related developmental readiness efforts, projects, or products each involving unusual organizational complexity, technological advancement, and/or interface control.

(2) The program entails performance of a broad mission over a protracted period of time, is highly complex in nature, and involves substantial resources.

(3) The development and deployment of the program significantly influence elements of national interest, other than purely military, for an extended period of time.

(4) The program impacts the U.S. military posture to a greater degree than would normally warrant establishment of a project manager.

*f. Conditions for establishing a project manager.* An acquisition program is designated for management by a Project Manager (Colonel or YA-03) when the program requires consideration of a broad array of factors such as mission criticality; urgency of need; Congressional, DOD, or Army interest; organizational or technical complexity; and the system's life cycle costs.

*g. Conditions for establishing a product manager.* An acquisition program will be designated for management by a Product Manager (Lieutenant Colonel or YA-03) based on the same criteria used for project management with discriminating factors (for example, mission criticality; urgency of need; Congressional, DOD, or Army interest; organization or technical complexity; and the program's life cycle cost) being weighted by such things as mission priorities, overall PM organizational structure, and relative program costs.

*h. Preparation and procedures for establishing a program/project/product management office.*

(1) The ASA (ALT) Military Deputy (MILDEP) Review is the primary process for establishing all PMs. The MILDEP Review members include a representative from each command on the command select list (CSL). The MILDEP is the ultimate decision authority.

(a) Requests to designate an acquisition program for intensive centralized management by a PM are submitted to the U.S. Army Acquisition Support Center (USAASC), using a web-based MILDEP Review software application. This software system draws information (manpower, funding, schedule, program data, coupled with Congressional and OSD interests) from the acquisition information management (AIM) database. It eliminates the use of paper and allows the senior Army leadership to draw upon all available information to render a decision.

(b) The MILDEP Review software application provides the PEOs, AMC, and Acquisition commanders the capability to enter pertinent information regarding their programs whether going before the annual MILDEP Review or when submitting out of cycle requests. The MILDEP Review members then have the ability to see an integrated view of programs, reports, and information in a consumable format so that they can make informed decisions regarding revalidation, disestablishment, and establishment of any CSL programs.

(c) The annual MILDEP Review assesses the current year PMs and makes recommendations, (establishing, disestablishing, downgrading and merging acquisition programs, and commands) to the AAE for approval. The CSL is the end product of the MILDEP Review process. The CSL identifies positions in the category of “best qualified” (BQ) or “military only” (colonel or lieutenant colonel) for fill by the DA centralized project/product manager and acquisition command selection boards. The PM/Acquisition Command Selection Boards select individuals in the category of BQ or “military only” based upon approval by the AAE. A BQ clearly indicates that either a military or civilian candidate competes for the position. Reserving positions for “military only” is limited to Acquisition Command positions and those PM positions requiring specialized skills.

(d) There are two centralized acquisition boards held during the year. The project manager/acquisition commander board (colonel or YA-03) is usually held in January. The product manager/acquisition commander board (lieutenant colonel or YA-03) is usually held in November. The PM/acquisition command positions will be selected and slated by fiscal year in the same manner as all other Army Competitive Category command positions. The Acquisition Management Branch of the Human Resources Command determines final board dates.

(e) Out-of-cycle requests are submitted to USAASC using the MILDEP Review software application system. Once the program data is entered into the system, the USAASC point of contact should be notified via e-mail to alert them of an out of cycle submittal. USAASC submits the out-of-cycle package to the AAE for approval. If approved, the PM is selected from the alternate list.

(2) Figures 1–3 through 1–5 are sample sheets displayed in the MILDEP Review software application system. Tabs in this system display program data: funding, schedule, manpower, mission criteria, and other criteria. Once in the application, each tab is self-explanatory, wherein; each field will require data entry. The memorandum of instruction (MOI) provides specific guidance on the upcoming MILDEP Review. The scheduled CSL positions that go before the MILDEP Review will be attached to the MOI. The MOI lays out the milestones for the MILDEP Review.

(3) DD Form 2589 (Acquisition Position Restricted to Member of the Armed Forces) is included in the MILDEP Review software application system. When selecting “military only,” a mandatory field will appear, requiring the PEOs, AMC, and Acquisition commands to complete. This will replace the paper copy DD Form 2589.

(4) Acquisition commands also utilize the MILDEP Review software application system. However, the tabs are modified to accommodate their unique mission.

*i. Program/project/product manager chartering.* Charters are only issued to centrally selected PMs. The AAE signs the charters. After signature, charters are forwarded to the appropriate PEOs for their signature and presentation to the PM. The process reinforces the chain of authority from the AAE through the PEO to the individual PM.

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**PROJECT/PRODUCT MANAGER  
SELECTION CRITERIA SHEET**

PM Name \_\_\_\_\_

1. Brief description of program
2. Brief description of Program/Project/Product Manager's responsibilities
3. Desirable Characteristics
  - a. Military Education
  - b. Civilian Education
  - c. Experience
  - d. Security Clearance
  - e. Branch/Functional Area/Branch/Series (Use of branch/functional Area designators to define the requisites of the position requires PEO/General Officer justification.)
  - f. Special Qualifications
  - g. Other
4. Administrative Data
  - a. Duty Station
  - b. APL
  - c. UIC
  - d. Report Date

Figure 1–3. Sample format for PM selection criteria in MILDEP Review software application system

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**PROGRAM SUMMARY SHEET**  
 (Title of Program)  
 (Major/Significant Non-Major/Non-Major)

PEO/MATERIEL  
 COMMAND \_\_\_\_\_

INCUMBENT: \_\_\_\_\_ ROTATION DATE:

NEW START DATE:  
 MISSION: (Brief description)

ACAT LEVEL (I/II/III) \_\_\_\_\_

**PROGRAM MILESTONES:**

A:  
 B:  
 C:  
 Full Rate Production Decision Review:

**PROGRAM FUNDING (FYXX-XX POM UPDATE):**

MDEP:

PE/PROJ/SSN NUMBER		FYXX	FYXX	FYXX	FYXX	FYXX
	RDTE					
	PROC					
	OMA					
	TOTAL					

MANPOWER END STRENGTH: (Current Approved TDA)  
 CORE MILITARY \_\_\_\_\_ CIVILIAN \_\_\_\_\_  
 CO-LOCATED MATRIX: MILITARY \_\_\_\_\_ CIVILIAN \_\_\_\_\_  
 CONTRACTOR SUPPORT (COLO)\* CIVILIAN \_\_\_\_\_  
 CONTRACTOR SUPPORT(NON-COLO)\* CIVILIAN \_\_\_\_\_

\* Enter "full time equivalent" (FTE) numbers.

Figure 1-4. Sample format for the Program Summary Sheet in the MILDEP Review software application system

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## OTHER SIGNIFICANT PROGRAM INFORMATION

1. Briefly address the following (if applicable):
  - a. Significant Congressional, Office of the Secretary of Defense, and/or Department of Army interest.
  - b. Significant impact on military posture and readiness.
  - c. Extensive interdepartmental, national or international coordination.
  - d. Unusual organizational complexity, technological advancement of interface control.
  - e. Unusual difficulties requiring centralized management.
2. List the systems currently managed by the PM.

Figure 1–5. Sample format for program information supporting requests to establish a PM in the MILDEP Review software application system

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### 1–13. Disestablishing product/project manager offices

This paragraph provides the guidance, criteria, procedures, and format for disestablishing a PMO.

*a.* Disestablishment of a PMO occurs after management responsibility for all assigned programs have been either terminated or when directed by the Defense Acquisition Executive (DAE), the DOD CIO, or the AAE. When a PM is responsible for more than one program, the successful transition or termination of one program will not result in PMO disestablishment provided the remaining program(s) warrant continued centralized management. AAE approval of PMO disestablishment is mandatory for both PEO and Non-PEO managed programs.

*b.* The USD (AT&L) must concur with the disestablishment of ACAT ID PMOs and the ASD (NII) must concur with the disestablishment of ACAT IAM PMOs.

*c.* The AAE (USAASC) reviews a PMO for disestablishment when the program is in mature, stable production with no anticipated additional technical risk or when the PM position is submitted to the Command Selection Board to fill an anticipated vacancy.

*d.* A PMO is disestablished when any of the following criteria exists:

(1) The program management objectives are achieved and the system is removed from inventory, thereby absolving the PM of life cycle management responsibility.

(2) The program objectives cannot be achieved or no longer meet the threat or the desired capabilities.

(3) Technology no longer meets operational requirements or is no longer economically suitable.

(4) Funding support for the program is withdrawn.

*e.* Actions to disestablish a PMO and the lead agency for each are:

(1) Development of an approved PMO disestablishment/termination plan (PM lead).

(2) Execute the plan (PM lead; USAASC and gaining system, logistics, or materiel command support).

(3) Financial closeout or transfer of residual financial responsibility to gaining organization in accordance with the plan (PM lead).

(4) Disposition of manpower spaces and release or reassignment of PMO personnel in accordance with the plan (USAASC lead).

(5) Turnover of facilities, permanent documents, and documents of significant historical value (PM lead).

(6) Disposition of PM owned wholesale (dormant) stock (PM lead).

*f.* When the decision is made to terminate a program and to disestablish the associated PMO, the PEO/DRPM/MATDEV initiates the disestablishment plan. A sample format is provided at figure 1–6. The plan is prepared in coordination with the gaining system, logistic, or materiel command to which management responsibility will transfer. The plan is forwarded to the AAE at least three months prior to the proposed effective date for disestablishment. Detailed procedures for PMO disestablishment should be tailored to the situation within the affected MATDEV and be reflected in the plan.

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**Sample Format  
Disestablishing Project/Product Management Offices**

- 1. Purpose.** Indicate name of the /Project/Product Management Office, gaining command, and the effective date for disestablishment.
- 2. Program/System Description.** Include function and technical description of the program/system to be terminated. Include the identification of salvageable technologies and other deliverables and any other pertinent issues that require approval.
- 3. Program Status.** Include the life cycle phase.
- 4. Organizational Responsibilities.** Identify those management responsibilities and tasks that the gaining organization will need to continue after disestablishment/termination. When appropriate, address any provisions required to facilitate the termination of the program/system from centralized management. Areas to be addressed in this paragraph include the following:

- Item Documentation and Records
- Configuration Management
- Engineering Responsibility, Engineering Data and Technical Data Package
- Logistics Support
- Software Fielding, Replication, Distribution, and Maintenance
- Transportation and Packaging
- Product Assurance Responsibility
- Safety
- Human Systems Integration
- Program Protection Plan
- Security Classification Guidance
- Environmental Documentation

- 5. Assumptions.**
- 6. Contract Status.** Open contracts/contractor(s)/time to completion/contract amount(s)/type dollars. Also include description of procurement activities, status of contracts, and contract-related responsibilities pertinent to the disestablishment process. Address termination and/or modification of existing contracts to include termination costs and unliquidated obligations.
- 7. Funding summary.** RDT&E/Procurement/OMA/Future Year Defense Plan. Include portrayal of the overall budgeting and funding to include funds necessary for program termination, PMO disestablishment, and any other anticipated future funding needs. Establish a timetable for withdrawal of program funds and address the status of funding actions that have an actual or contingent liability.
- 8. Authorization/Personnel Summary.** Include proposed disposition of all manpower authorizations and personnel involved in the disestablishment including those required for completion of close-out activities and those available for reassignment. When appropriate, include the schedule of proposed draw down of manpower authorizations. Provide the personnel summary in the following formats:

MILITARY: (Current\* Auth)(On Board)(Required After\*\*)

\* Indicate if ODP/APL supported

CIVILIAN: (Current Auth)(On Board Auth)(Required After\*\*)

\*\* Identify the functions (as stated in item 4) of all personnel resources required after disestablishment.

**Figure 1–6. Sample format for PMO disestablishment plan**

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FROM: UIC/TDA CCNUM

Para/Lin	MDEP	AMSCO	Position Title	MOS or Occ Series	Req/Auth	APL No.	Name of Incumbent
----------	------	-------	----------------	-------------------	----------	---------	-------------------

TO: UIC/TDA CCNUM

Para/Lin	MDEP	AMSCO	Position Title	MOS or Occ Series	Req/Auth	APL No.	Name of Incumbent
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**9. Plan For Disestablishment Actions/Milestones.** Document the disestablishment process. Identify tasks and milestones for activities involved in disestablishing the PMO.

**10. Agreements And Commitments.** Identify any Memoranda of Agreement/Understanding that supports the PMO and/or program/system being disestablished. Address withdrawal from any agreement or understanding including international programs.

**COORDINATION:**

\_\_\_\_\_ (Losing Organization)                      \_\_\_\_\_ (Gaining Organization)

**Automated Information Systems:** \_\_\_\_\_  
(Functional Proponent)

**Headquarters, Department of the Army Review:** \_\_\_\_\_  
(ASA(ALT))

**APPROVAL:** \_\_\_\_\_  
(Army Acquisition Executive)

Figure 1–6. Sample format for PMO disestablishment plan–continued

(1) The USAASC reviews and coordinates all proposals for the disestablishment of PMOs and provides recommendations to the AAE. All tasks and directions to the PEOs/DRPMs/MATDEVs to execute the AAEs decision to disestablish a PMO are developed and issued by USAASC.

(2) The USAASC initiates action to notify the USD (AT&L) or ASD (NII) of and gain their concurrence in disestablishment of ACAT ID or ACAT IAM PMOs.

g. Concurrently with initiation of the plan, the PM should report excess stock to the appropriate commodity managers for disposition and ensure arrangements are made for disposal/transfer of that stock.

**1–14. Terminating a program**

a. The Deputy for Systems Management and Acquisition (SAAL–ZS) accomplishes program termination.

b. When terminated, the program may be returned to a technology-based command for further development; transferred to an Army system, logistics, or materiel command to complete the closeout process; or retained in the PEO/DRPM/MATDEV structure for continued centralized management but without the identity of a separate acquisition program. The AAE will provide final direction on program termination.

c. The USD (AT&L) must concur with termination of ACAT ID programs and the ASD (NII) must concur with termination of ACAT IAM programs.

d. A program may be terminated when any of the following criteria exist:

(1) Presidential, Congressional, DOD, or Army Leadership decision.

(2) The program management objectives have been achieved and the system is removed from inventory, thereby absolving the PM of life cycle management responsibility.



- (3) The program objectives cannot be achieved or no longer meet the threat or desired capabilities.
  - (4) The technology no longer meets the operational requirements or is no longer economically supportable.
  - (5) Funding for the program is withdrawn.
- e.* When the decision is made to terminate a program but retain it in the PEO/DRPM/MATDEV structure for continued centralized management without separate identity and with no assets being moved outside of the PEO/DRPM/MATDEV organization, the PM notifies USAASC of the termination by memorandum/letter format. Notification should include the disposition of manpower assets and residual funding.
- f.* The PM initiates the program termination plan when the decision is made to (see sample format at fig 1–7):
- (1) Terminate a program from centralized management and return it to a technology-based command for further development, or
  - (2) Transfer it to an Army system, logistics, or materiel command to complete the closeout process.

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**Sample Format  
Termination Plan**

**1. Purpose.** Indicate name of program/system(s) to terminate, gaining command, and the effective date.

**2. Program/System Description.** Include function and technical description of the program/system to be terminated. Include the identification of salvageable technologies and other deliverables and any other pertinent issues that require approval.

**3. Program Status.** Include the life cycle phase.

**4. Organizational Responsibilities.** Identify those management responsibilities and tasks that the gaining organization will need to continue after termination. When appropriate, address any provisions required to facilitate the termination of the program/system from centralized management. Areas to be addressed in this paragraph include the following:

- Item Documentation and Records
- Configuration Management
- Engineering Responsibility, Engineering Data and Technical Data Package
- Logistics Support
- Software Fielding, Replication, Distribution, and Maintenance
- Transportation and Packaging
- Product Assurance Responsibility
- Safety
- Human Systems Integration
- Security Classification Guidance
- Environmental Documentation

**5. Assumptions.**

**6. Contract Status.** Open contracts/contractor(s)/time to completion/contract amount(s)/type dollars. Also include description of procurement activities, status of contracts, and contract-related responsibilities pertinent to the termination process. Address termination and/or modification of existing contracts to include termination costs and unliquidated obligations.

**7. Funding summary.** RDT&E/Procurement/OMA/Future Years Defense Plan. Include portrayal of the overall budgeting and funding to include funds necessary for termination of the program and any anticipated future funding needs. Establish a timetable for withdrawal of program funds and address the status of all funding actions that have an actual or contingent liability.

**8. Authorization/Personnel Summary.** Include proposed disposition of all manpower authorizations and personnel involved in the termination including those required for completion of close-out activities and those available for reassignment. When appropriate, include the schedule of proposed draw down of manpower authorizations. Provide the personnel summary in the following formats:

MILITARY: (Current\* Auth)(On Board)(Required After\*\*)  
\* Indicate if ODP/APL supported

CIVILIAN: (Current Auth)(On Board Auth)(Required After\*\*)  
\*\* Identify the functions (as stated in item 4) of all personnel resources required after termination.

**Figure 1–7. Sample format for a program termination plan**

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FROM: UIC/TDA CCNUM

Para/Lin	MDEP	AMSCO	Position/Title	MOS or Occ Series	Req/Auth	APL No.	Name of Incumbent
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TO: UIC/TDA CCNUM

Para/Lin	MDEP	AMSCO	Position/Title	MOS or Occ Series	Req/Auth	APL No.	Name of Incumbent
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**9. Plan For Termination Actions/Milestones.** Document the termination process. Identify tasks and milestones for activities involved in termination.

**10. Agreements And Commitments.** Identify any Memoranda of Agreement/Understanding that supports the program/system being terminated. Address withdrawal from any agreement/understanding including international programs.

**COORDINATION:**

\_\_\_\_\_ (Losing Organization)                      \_\_\_\_\_ (Gaining Organization)

**Automated Information Systems:** \_\_\_\_\_  
(Functional Proponent)

**Headquarters, Department of the Army Review:** \_\_\_\_\_  
(ASA(ALT))

**APPROVAL:** \_\_\_\_\_  
(Army Acquisition Executive)

Figure 1–7. Sample format for a program termination plan—continued

- g. The plan is prepared in coordination with the organization to which management responsibility will be transferred.
- h. The termination plan should be submitted to the AAE for approval at least three months prior to the effective date of termination.
- i. The PEO/DRPM/MATDEV and gaining organization coordinate on all aspects of the plan and ensure that the proper distribution of assets belonging to the program, including manpower authorizations and personnel, is delineated in the plan. In the event that the PEO/DRPM/MATDEV and gaining organization are unable to reach an agreement on distribution of assets, including manpower authorizations and personnel, resolution is made at HQDA (USAASC).
  - (1) The USAASC reviews and coordinates all proposals for the termination of programs and provides recommendations to the AAE. Once the AAE makes the decision to terminate, the USAASC develops and issues all tasks and direction to the PEOs/DRPMs and MATDEVs to execute the AAEs decision. Unless the AAE directs a change, the program terminates on the approved date in accordance with the termination plan.
  - (2) The Deputy for Systems Management and Acquisition initiates action to notify the USD (AT&L) or ASD (NII) of and gain their concurrence in the termination of ACAT ID or ACAT IAM programs.
- j. The PEO/DRPM/MATDEV is responsible for ensuring that the planning, preparation, and tracking of the execution of termination activities result in an orderly program termination.

**Section VI**  
**Science and Technology Maturation, Demonstration, and Transition Information**

**1–15. Science and technology introduction**

This section provides procedural guidance for S&T planning and execution including, but not limited to, basic research, applied research, advanced technology development and demonstration, and transition. This guidance also pertains to special access programs (SAPs) within the S&T program. The Army Science and Technology program consists of Major

Force Program 6 Research and Development (Budget) Categories 6.1 basic research, 6.2 applied research, and 6.3 advanced technology development programs, and includes S&T SAPs. The following topics describe key attributes of the Army's S&T program.

#### **1–16. Army Science and Technology Master Plan**

The Army Science and Technology Master Plan (ASTMP) is the single source document describing the Army S&T program strategy, major technology objectives, research goals, as well as roles and relationships between S&T and strategic partners. The S&T program is shaped collaboratively through close partnerships with warfighting customers, related S&T developers across the Department of Defense, other federal agencies, industry, academia, and international partners. It provides linkages to warfighting needs stated by the U.S. Army Training and Doctrine Command (TRADOC) and describes the major S&T efforts funded in the Army budget. The ASTMP is published every other year by the Deputy Assistant Secretary of the Army for Research and Technology (DASA (R&T)) and the ASA (ALT), and approved by the Secretary of the Army and Chief of Staff, Army.

#### **1–17. Science and technology vision**

The Army's S&T vision is to deliver technologies that will enable the Future Force and enhance Current Force capabilities.

#### **1–18. Science and technology strategy**

The Army's S&T strategy is to pursue technologies that will enable the future force while simultaneously seizing opportunities to enhance the current force.

#### **1–19. Army Science and Technology Advisory Group; Army Science and Technology Working Group; and the Army Science and Technology Working Group Councils**

The Army S&T program receives its broad management direction and focus from five executive level groups:

*a.* The Army Science and Technology Advisory Group (ASTAG) provides four-star level oversight of the Army S&T program and is co-chaired by the ASA (ALT) and the Vice Chief of Staff, Army. Members of the ASTAG are listed at figure 1–8.

*b.* The Army Science and Technology Working Group (ASTWG) provides two-star level resolution of pressing S&T issues prior to meetings of the ASTAG; recommends to the ASTAG revisions to the Army's S&T vision, strategy, principles, and priorities; and reviews and approves new, revised, and continuing Army technology objectives (ATOs) and ATDs. The ASTWG is co-chaired by the DASA (R&T) and the Deputy Chief of Staff (DCS), G–8 Force Development. The ASTWG membership is listed at figure 1–8. In addition, the Technical Directors of the Army labs, centers, and Institutes, and PEOs advise the ASTWG on technology and acquisition issues.

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### **Army Science and Technology Advisory Group (ASTAG) Membership**

Assistant Secretary of the Army (Acquisition, Logistics and Technology) (Co-Chair)  
Vice Chief of Staff, Army (Co-Chair)  
Commanding General, TRADOC  
Commanding General, Army Materiel Command  
Commanding General, Forces Command (FORSCOM)  
DCS G-1  
DCS G-2  
DCS G-3/5/7  
DCS G-4  
CIO/G-6  
DCS G-8  
The Surgeon General  
Commanding General, U.S. Army Corps of Engineers  
Commanding General, Space and Missile Defense Command

### **Army Science and Technology Working Group (ASTWG) Membership**

Deputy Assistant Secretary of the Army (Research and Technology) (Co-Chair)  
DCS G-8 Director, Force Development (Co-Chair)  
And representatives from the following organizations:  
Deputy Assistant Secretary of the Army (Defense Exports and Cooperation) (SAAL-ZN)  
Deputy for Acquisition and Systems Management (SAAL-ZS)  
HQ TRADOC Army Capability Integration Center (ARCIC)  
HQ Army Materiel Command / Research, Development and Engineering Command  
U.S. Army Medical Research and Materiel Command  
Space and Missile Defense Command  
U.S. Army Corps of Engineers  
DCS G-1  
DCS G-2  
DCS G-3/5/7  
DCS G-4  
CIO/G-6  
Office of the Assistant Chief of Staff, Installation Management  
Program Analysis and Evaluation Directorate, DCS G-8  
Army Test and Evaluation Command

**Figure 1–8. ASTAG and ASTWG membership**

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c. Supporting the ASTWG process are three councils.

(1) The warfighter technical council (WTC), a one-star level group, performs the detailed review and assessment of all proposed and ongoing 6.3 funded ATOs (designated ATO– Demonstrations (ATO–Ds)), ATO– Manufacturing Technology (ATO–M), and ATDs. The WTC presents the results of its work, with its recommendations, to the ASTWG for guidance and approval. The WTC is co-chaired by the Director for Technology, Office of the DASA (R&T); the DCS G–8 Force Development (FD) Director, Joint and Futures; and the Director of Capabilities Development at the TRADOC Army Capabilities Integration Center (ARCIC). The WTC is comprised of senior representatives from the Army commands (ACOMs), Army service component commands (ASCCs), DRUs, and the Army Staff with S&T oversight or development responsibilities.

(2) The Technical Council, another one-star level group, performs the detailed review of 6.2 ATOs (designated ATO– Research (ATO–R)). The Technical Council is co-chaired by the Director for Technology, Office of the DASA (R&T), the DCS, G–8 FD Director for Joint and Futures, and the Director of Capabilities Development at the TRADOC ARCIC. The Technical Council is comprised of the Technical Directors from the Army’s laboratories and RDECs, the U.S. Army

Medical Research and Materiel Command (USAMRMC) Principal Assistant for Research & Technology, the Space and Missile Defense Command (SMDC), Corps of Engineers (COE) Technical Directors, and the RDECOM Director for System of Systems Integration (SOSI). The results are presented to the ASTWG for guidance and approval.

(3) The International Programs Working Group (IPWG), a two-star level group, conducts detailed review and assessment, providing leadership visibility, of all proposed funded international S&T programs. This review and assessment should be completed before the Deputy Assistant Secretary of the Army for Defense Exports and Cooperation (DASA (DE&C)) grants negotiation or request authority to develop (RAD) authority for each program's supporting international agreement (IA). The IPWG has been delegated approval authority for all proposed funded international S&T programs with a total U.S. investment not to exceed \$10M. The IPWG presents the results of its work, with its decisions and recommendations, to the ASTWG for guidance and approval. The IPWG is co-chaired by the DASA (DE&C) and the Director for Research and Laboratory Management under the Office of the DASA (R&T). It is comprised of senior representatives from the ACOMs, ASCCs, DRUs, and the Army Staff with S&T oversight or development responsibilities.

## **1–20. Science and technology procedures**

### *a. Army technology objectives.*

(1) *Description.* The ATOs are the highest priority S&T efforts designated by HQDA funded within the future force technology area investments. ATOs are co-sponsored by the S&T developer and the warfighter's representative, TRADOC. Each ATO describes a significant Army S&T program. It has well-defined customer deliverables that represent significant technical advances; clear milestones, which include schedule and technology readiness level (TRL); and quantitative metrics to measure progress. The goals of an ATO must be achievable within the funding available.

(a) There are three types of ATOs. The ATO–D and ATO–R programs use S&T funding to mature technology for transition. The ATO–M programs use non-S&T funding that is managed by the DASA (R&T) specifically allocated to reduce the cost of new technology, improve probability of success in the manufacturing process, or reduce costs of existing manufacturing technology.

(b) An ATO–D is intended to transition a “product” to the warfighter. These are major efforts of limited duration (two to four years) that normally transition to an acquisition customer verified by a PEO/PM or that provide a major transformational capability endorsed by the ACOM or equivalent organization's headquarters. An ATO–D program manager is required to have a signed technology transition agreement with a PEO/PM one year prior to completion specifying the technology products to be delivered, the schedule for delivery, the maturity of the technology at delivery, and the metrics that will be used to demonstrate that maturity. Delivery of the technology demonstrated in an ATO–D should be synchronized with an acquisition program. ATO–Ds culminate with a TRL of 5 to 6.

(c) An ATO–D encompasses about 80 percent of the budget activity (BA) 6.3 funding in a laboratory or research, development, and engineering center (RDEC). Remaining funds provide technical directors with needed flexibility to respond to emerging needs of warfighters engaged in the Global War on Terrorism. This flexibility also enables the exploitation of technology concepts for new applications based on unforeseen technical achievement.

(d) An ATO–R focuses on maturing technology and is funded primarily with BA 6.2 (applied research) dollars. An ATO–R sometimes transitions to an ATO–D effort. It contributes to satisfying a capability gap or has the potential to achieve a significant technology advance, normally resulting in a TRL 4 or 5 after a three to five years' duration. An ATO–R “product” may be a component such as a focal plane or improved armor capability; an improved tool to meet military needs, such as the capability for realistic embedded training; or applied research to select technology options to meet military needs, which can then be matured in a BA 6.3 program. In general, about half of an Army laboratory's or center's available applied research funding should be in ATO–Rs. The other half of the applied research budget is used to exploit applied research opportunities in higher risk, high-potential payoff technologies (for example, ceramic laser materials for high-energy laser weapons).

(e) Not every worthwhile funded technology program is designated as an ATO. Because ATOs are part of a rigorous process to “deliver” technology within a scheduled timeframe based on need, they are, by their nature, describing technology applications that are fairly well understood from a research perspective.

(f) See figure 1–9 for the ATO review process.

### ATO Portfolio Development

- MATDEV proposes
- TRADOC endorses
- HQDA approves

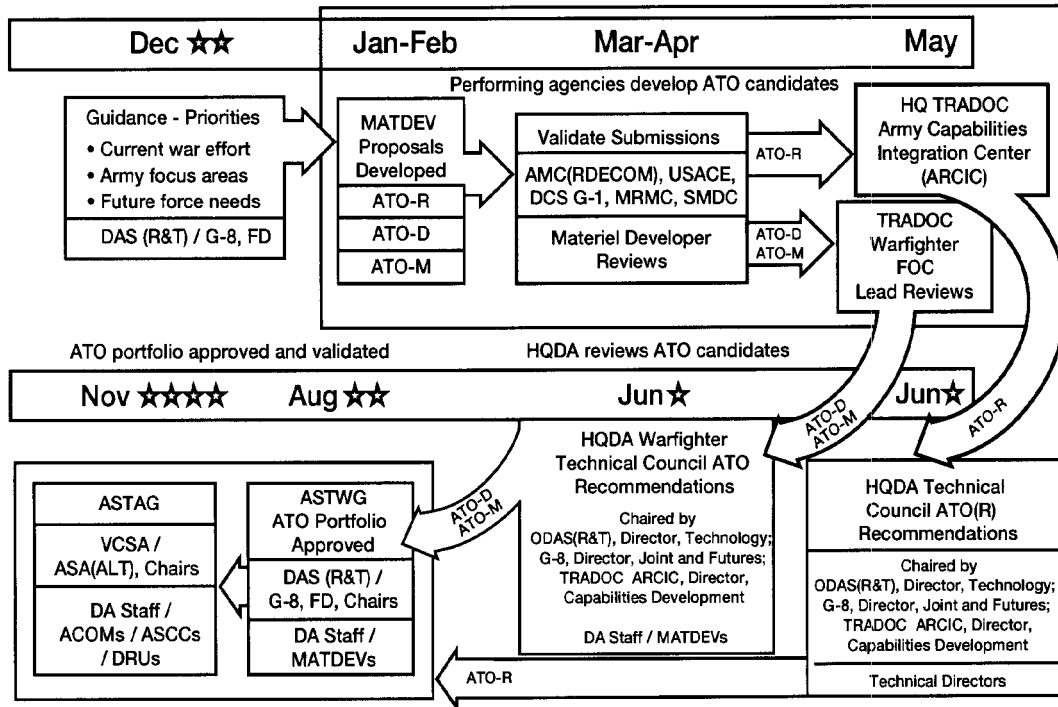


Figure 1-9. ATO review process

(2) *Army technology objective guidance.* Each year, the DASA (R&T), Assistant DCS, G-3/5/7 and the Deputy Chief of Staff, G-8 (DCS, G-8) provide HQDA guidance to the S&T materiel developer and the combat development communities on priorities and needs for annual adjustments to the ATO portfolio, including new ATO proposals. This guidance reflects the most recent Army strategic planning guidance and DOD transformation guidance. Headquarters and the ATO developing commands expand on this basic guidance to specify how the proposed ATOs will be presented for review and approval. After review by the responsible research and development (R&D) directors at ACOMs, ASCCs, or DRUs, ATO candidates are reviewed annually at a joint MATDEV/CBTDEV meeting. After the TRADOC ARCIC reviews, ATO-Rs are reviewed by the Technical Council and ATO-Ds and ATO-Ms by the WTC. Both bodies provide recommendations to the ASTWG for guidance and approval. Assisting the ASTWG in an advisory capacity are the Technical Directors and the PEOs acting as the Acquisition Council.

(3) *Army technology objective nomination.* To begin the ATO nomination process, responsible R&D organizations prepare and submit an ATO Fact sheet. The purpose of the Fact Sheet is to succinctly capture the goals and metrics of the ATO, and the requirement and gap that the ATO will address. ATO Fact Sheet information may vary from year to year and adjustments are made in the ATO guidance. Information on ATOs can be found in the Army Science and Technology Enterprise Management (STEM) Portal (<https://stem-collabsuite.altess.army.mil>).

*b. Army technology objective—manufacturing technology (ATO-M) and rapid response manufacturing initiatives.*

(1) The ATO-Ms address the affordability of producing a technology solution by developing new or improved manufacturing technologies (ManTech). An ATO-M has producibility milestones addressing a specified PEO/PM program with manufacturing readiness levels (MRLs) identified in addition to TRLs. All ATO-Ms must include metrics that track

process capability and costs (ROI). ATO–Ms have a duration of 3 to 5 years. Army ManTech is funded by BA 6.7 resources to support the development of essential manufacturing technologies that will enable the producibility of new technologies and reduce acquisition program manager risk by transitioning manufacturing processes to production. The ManTech program places a strong emphasis on transitioning technology, by directly involving the technology developers, acquisition program managers, and industry. ATO–Ms operate under identical guidance as ATO–Ds with respect to the review process.

(2) Rapid response (RR) initiatives operate on an abbreviated schedule in order to facilitate near-term transition opportunities to PMs and assist with meeting urgent need production requirements. These projects are normally 2 years or less in duration and respond to near-term PM requirements or opportunities to enhance manufacturing readiness and affordability of Small Business Innovative Research (SBIR), Agile Integration and Demonstration (AIDE), and Rapid Equipping Force (REF) technologies.

(3) After review by responsible R&D directors at RDECOM, project candidates are reviewed by the Joint Defense ManTech Panel to avoid funding duplicative efforts and identify opportunities to leverage other Service/Agency manufacturing programs. ATO–Ms are reviewed by the WTC to provide recommendations to the ASTWG for guidance and approval. RR initiatives are developed and reviewed by RDECOM along with ATO–Ms, but are approved by the Director for Technology, ODASA (R&T), and executed by the RDECOM Centers and Labs.

(4) The ATO–M and RR nomination process utilizes a similar format as other ATOs (ATO Fact Sheet, slide packages). Additional information on the Army ManTech program and Manufacturing Readiness Levels can be found at <http://www.armymantech.com>.

*c. Advanced technology demonstrations.*

(1) Advanced technology demonstrations (ATDs) are a special class of ATO–Ds designed to promote rapid transition of selected technologies to high priority acquisition programs. When the Army has a clear demand for a technology system or component capability to the point where the Army commits to a funded EMD and procurement strategy, the S&T development community forms an ATD. These efforts are shaped in cooperation with the acquisition customers and warfighting stakeholders to mature technologies to TRL 6.

(2) The ATDs are the most complex programs in the S&T portfolio and managed much like a formal acquisition program. Each ATD is designed to meet or exceed exit criteria agreed upon by the warfighter and ATD manager at program inception. These exit criteria must be met before the technology products are transitioned to development. ATDs are typically three to five year programs and are relatively large scale in resources and complexity (compared to other S&T programs) but typically focused on an individual system or subsystem. They are required to have operator/user involvement from planning to final documentation; measurable exit criteria approved by both the materiel developer and the combat developer; and testing with Soldiers in a real or synthetic operational environment. The cost, schedule, and performance must be defined in the Advanced Technology Demonstration Management Plan (ATDMP) that is reviewed by responsible ACOM general officers or senior executive service (SES) member level leaders and approved by the DASA (R&T).

(3) Close cooperation by a TRADOC school or battle lab and the ATD manager is required throughout the demonstration to develop more informed requirements and to reduce program risk for the EMD phase of acquisition.

*d. Joint capability technology demonstrations.* Joint capability technology demonstrations (JCTDs) are DOD and combatant command (COCOM) sponsored programs that assess the utility of near-term, mature, readily fieldable technology solutions and the concepts of operations that are needed for effective use of those solutions. The Joint Requirements Oversight Council (JROC), the USD (AT&L), and Congress validate and approve JCTDs. The JCTDs have two parts: an operational demonstration followed by an extended user evaluation (EUE). By the end of the evaluation period, a decision is made whether or not to proceed with an acquisition program based on the results of the assessment and, ultimately, on resource prioritization by the Army. JCTDs evaluate the military utility of advanced technologies through large-scale demonstrations. Additional information is available at <http://www.acq.osd.mil/actd/>.

*(1) Army joint capability technology demonstrations nomination process.*

*(a)* The JCTD candidates in the Army are generated top-down by direction of senior Army leadership or bottom-up by partnership between a MATDEV and a CBTDEV working in conjunction with COCOM as the operational user/sponsor (see fig 1–10). In either case, the proposed funding source for the JCTD candidate needs to be identified as part of the proposal. Because of constrained resources, it is imperative that Army JCTD proposal development, approval process, and execution of the demonstration be conducted as a team effort between the sponsoring COCOM, MATDEV, and the CBTDEV. Except for the contributing funds available from OSD (nominally 10 percent–20 percent of total cost), and any contributing funding from other Title X partners, Army JCTDs are typically funded from existing Army BA 6.3 S&T funding lines. The resource managers for those funding lines must commit to reprogram the Army funding required for the JCTD before Army leadership can commit to sponsor the effort.



## Army JCTD Nomination Process

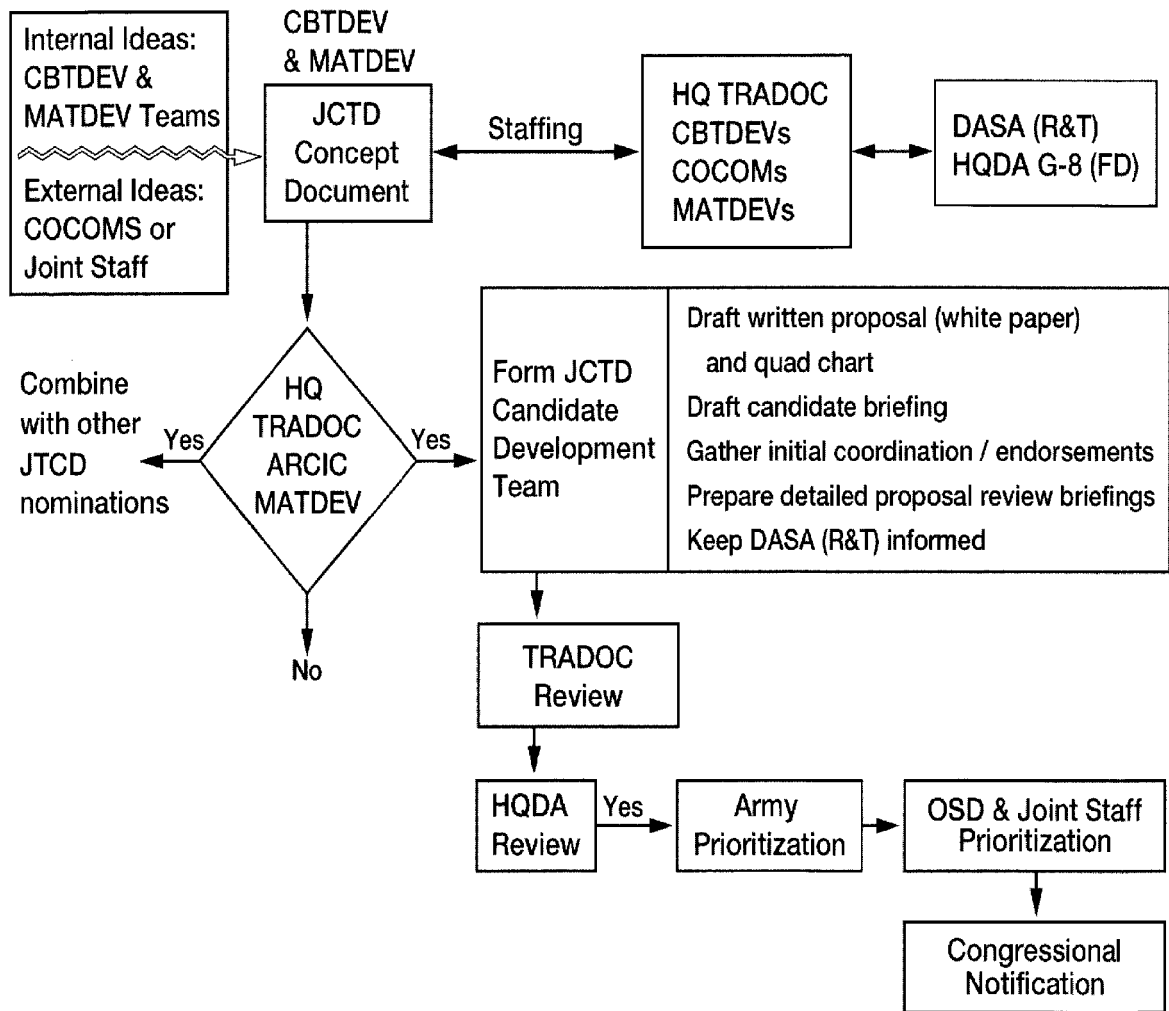


Figure 1-10. Army JCTD nomination process

(b) The TRADOC force operating capabilities (FOCs) and/or COCOM priorities are the bases for the critical operational needs which provide justification for consideration as JCTD nominations. Combat developer and materiel developer teams in conjunction with an operational user/sponsor submit JCTD concept documentation (see fig 1-11) to TRADOC ARCIC and the appropriate R&D MATDEV. The teams develop a written proposal and quad chart in the specified OSD format, an OSD JCTD Candidate Review briefing (nominally 10 charts), conduct initial coordination/endorsements, and prepare for a detailed proposal review. During this time period, DASA (R&T) will be continually apprised of/briefed on status of JCTD candidate development. The TRADOC Headquarters (HQ); DCS, G-8 (FD); and DASA (R&T) conduct the detailed proposal review, typically 1-3 months prior to the OSD submission date for JCTD new starts. TRADOC submits approved JCTD candidates with recommendations to DCS, G-8 and DASA (R&T) prior to the required submission date to OSD. All Army JCTD nominations to OSD must be formally submitted by DCS, G-8 (FD) and DASA (R&T) to Deputy Under Secretary of Defense for Advanced Systems and Concepts (DUSD (ASC)). DASA (R&T) and DCS G-8 (FD) will coordinate and staff the proposals to the remainder of the HQDA Staff, and develop a consolidated Army prioritization for the proposals.

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## Army Joint Capability Technology Demonstration Nomination

- 1. Military Need:** What is the perceived military need, urgency of timing, and utility of the candidate system?
- 2. Concept:** Describe the basic technology/concept.
- 3. Demonstration:** Describe the type of demonstration envisioned.
- 4. Jointness in the JCTD:** To what degree will the proposed JCTD support joint/combined operations? Is there Joint/Combined participation?
- 5. JCTD Focus:** Identify how the proposed JCTD addresses and supports Transformation, the Future Force, and JV2020.
- 6. Products and Transition:** Briefly describe the product(s) of the JCTD, envisioned residual assets, and a plausible transition plan. The transition plan shall include the proposed PM/PEO and TRADOC Capability Manager (TCM) for managing post JCTD acquisition; an estimated cost for post-JCTD acquisition if the JCTD is successful and if the Army decides to pursue a follow-on acquisition; and a formal decision milestone for a follow-on acquisition as soon as feasible after the Military Utility Assessment (MUA) is completed.
- 7. Key Program Participants:** Identify the proposed Technical Manager (materiel developer), Transition Manager (PM/PEO), Operational Manager, Combatant Cdr/Component User Sponsor, and Lead Service (lead for transition).
- 8. Schedule and Funding:** Identify the overall schedule and funding for the JCTD.
- 9. Risks:** Describe perceived technical, funding, schedule, sustainment/supportability risks of the proposal.
- 10. Point(s) of Contact (POC):** POC for the JCTD submission. Include Name, Rank, Organization, Phone/Fax Numbers, E-Mail Address, and Mailing Address.

Figure 1–11. Sample format for Army JCTD nomination

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(c) The JCTD candidates that receive final approval by the Army leadership are submitted by the DCS, G–8 (FD) and DASA (R&T) to the DUSD (ASC), who then obtains Service/Agency and JROC prioritization and recommendations on all JCTD candidates submitted by Services/Agencies to OSD. DUSD (ASC) conducts in-depth reviews of those candidates that have received a high prioritization rating. Following these reviews, DUSD (ASC) makes the final decision in the JCTD selection process.

(d) The JCTDs nominated outside of the Army, but which require an Army equity, must have the approval of TRADOC HQ, DCS, G–8 (FD), and DASA (R&T). Army equity is defined as a JCTD that is seeking one or more of the following from the Army: funding, role as Technical Manager, role as Transition Manager, role as Operational Manager, or role as Lead Service.

(2) *Army joint capability technology demonstrations management.*

(a) The JCTD implementation directive (ID) is a succinct (two page maximum) agreement that defines the operational capability to be addressed, the general approach to be taken, and roles and responsibilities of the participants, as well as providing top level guidance for initiating execution of the JCTD. The ID is required prior to release of any OSD funds to the JCTD and is signed and completed as expeditiously as possible after JCTD approval, typically within 30 days. The ID serves as an interim management document until the completion of the JCTD Management Plan (JCTDMP). The ID normally requires the approval signatures of the sponsoring COCOM; the lead service acquisition executive's representative(s) (normally the DCS, G–8 (FD) and DASA (R&T) for the Army); the Technical, Operational, and Transition Managers for the JCTD; and, finally, the DUSD (ASC). (For additional JCTD ID information, see <http://www.acq.osd.mil/actd/implment.htm>.)

(b) The principal management tool for an JCTD is the JCTDMP (ref: <http://www.acq.osd.mil/actd/mngtplan>). The JCTDMP is a top-level description of the demonstration with sufficient detail such that the vital objectives, approach, critical events, participants, schedule, funding, risk, and transition objectives are understood and can be agreed upon by all relevant parties. The JCTDMP is meant to be a flexible document that can adapt to changes in the program; however, it must include sufficient detail to make it a useful management tool. That detail should include cost, schedule and performance objectives, and metrics that allow an objective and measurable assessment of progress at any time during the JCTD. Approval signatures are generally the same as those required for the ID.

## 1–21. Small business innovation research and small business technology transfer programs

a. Congress established the SBIR and small business technology transfer (STTR) programs to provide small businesses and research institutions with opportunities to participate in Government-sponsored research and development. SBIR was established in 1982 and has been reauthorized through 2008, while STTR was established in 1994 and is currently authorized through 2009.

b. The goals of the SBIR and STTR programs are:

- (1) Stimulate technological innovation.
- (2) Increase small business participation in federal R&D.
- (3) Increase private sector commercialization of technology developed through federal R&D.
- (4) Foster and encourage participation in Federal R&D by woman, minority, or veteran owned, and socially or economically disadvantaged small business concerns.

c. Congressional mandate requires that all federal agencies with an annual extramural R&D budget exceeding \$100 million participate in the SBIR program. The SBIR budget is computed as 2.5 percent of the agency's extramural R&D budget. The STTR budget is computed as 0.3 percent of the agency's extramural R&D budget. See 15 USC 638 for additional budget allocation information.

d. The U.S. Small Business Administration (SBA) is responsible for the Government-wide SBIR and STTR Programs. The SBA is responsible for developing top-level policy for the programs and reporting SBIR/STTR data and statistics to the Administration and Congress. Each federal agency manages its SBIR/STTR programs separately. The Army participates under the DOD SBIR/STTR program structure.

e. The SBIR program is open to any small business, defined as a business having no more than 500 employees (including all affiliates), which is operated in the U.S. and at least 51 percent owned by a U.S. citizen or permanent resident alien. The small business may subcontract a portion of its work, so long as the small business "prime" performs at least two-thirds of the Phase I work and half of the Phase II work. For the purposes of determining compliance, percent of work is usually measured by both direct and indirect costs; however, the actual method of measurement will be verified during contract negotiations.

f. The Principal Investigator for each SBIR Phase I and Phase II effort must be primarily employed by the small business firm at the time of the award and during the conduct of the proposed effort: meaning that more than half of his/her time is spent with the small business. Primary employment with a small business precludes full-time employment at any other organization. For STTR Phase I and Phase II efforts, the Principal Investigator may be primarily employed with *either* the small business *or* the research institution. Any deviations from these requirements must be approved during contract negotiations.

g. The STTR program is open to any team consisting of a small business (as defined above) and a research institute. The research institute may be any U.S.-based nonprofit research institution, federally funded research and development center (FFRDC), or university or college. The small business must perform at least 40 percent of the Phase I and Phase II work. The research institute must perform at least 30 percent of the Phase I and Phase II work. Up to 30 percent of the work may be subcontracted.

h. For both programs, the Phase I and Phase II work must be performed in the United States, to include the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, the Trust Territory of the Pacific Islands, and the District of Columbia.

i. Each year, along with other DOD components, the Army generates and publishes a set of high-priority topics in a SBIR solicitation and invites small businesses to submit proposals dealing with these topics. The topics reflect the user community's interests and Force Operating Capabilities as expressed in TRADOC Pamphlet 525–66. All Army SBIR topics will also reflect Future Combat Systems/Future Force S&T needs and, at the same time, align with ATOs, ATDs, and JCTDs. TRADOC, the Logistics Innovation Agency, and Army ManTech representatives have an opportunity to endorse SBIR topics. At least 50 percent of Army's topics must be endorsed or co-authored by an acquisition program PM or PEO. The ASA (ALT) allocates a share of SBIR topics directly to PEOs to stimulate collaboration between the S&T and acquisition communities and increase the potential of transitioning SBIR technologies into acquisition programs.

j. Both programs use a three-phase process, reflecting the high degree of technical risk involved in developing and commercializing cutting edge technologies.

(1) Phase I is a feasibility study that determines the scientific, technical, and commercial merit and feasibility of a selected concept. Phase I projects are competitively selected from proposals submitted against annual solicitations. Each solicitation contains topics seeking specific solutions to stated Government needs. The Army publishes its SBIR topics in the second of three DOD SBIR solicitations each year, which generally opens in the summer. The Army likewise publishes its STTR topics in an annual DOD STTR solicitation, which generally opens in January of each year. The Army SBIR/STTR Phase I processes are highly competitive, with about one out of ten proposals receiving awards.

(2) Phase II represents a major research and development effort, culminating in a well-defined deliverable prototype (in other words, a technology, product, or service). The Phase II selection process is also highly competitive. Successful Phase I contractors are invited to submit Phase II proposals as there are no separate Phase II solicitations. Approximately 50 percent of Phase II proposals are selected for award.

(3) In Phase II Plus, the Army provides up to \$500,000 in matching SBIR funds for an existing Phase II effort to be extended for up to one year to perform additional research and development.

(4) Phase III refers to work that derives from, extends, or logically concludes effort(s) performed under prior SBIR funding agreements, but is funded by sources other than the SBIR program. Phase III work is typically oriented towards commercialization of SBIR research or technology. A Federal agency may enter into a Phase III SBIR agreement at any time with a Phase II awardee. Similarly, a Federal agency may enter into a Phase III SBIR agreement at any time with a Phase I awardee.

*k.* Phase III is the commercialization phase of SBIR. Phase III success is measured by the small business marketing and selling the products or services outside of the SBIR program. Sales can include cash revenue from the Government or private sale of new products or non-R&D services embodying the specific technology and/or spin-off technology. Commercialization can also include additional investments in activities that further the development and/or commercialization of the specific technology. As technology projects progress to Phase III in the SBIR program, the small business is expected to obtain funding from the private sector and/or non-SBIR Government sources to develop the prototype into a viable product or service for sale in the Government or private sector markets.

*l.* Phase III awards may be made without further competition. The competition for SBIR Phase I and Phase II awards satisfies any competition requirement when processing Phase III awards. Therefore, an agency is not required to conduct another competition in order to satisfy any statutory provisions for competition. Contract file documentation should demonstrate that the proposed Phase III award is derived from, extends, or logically concludes efforts performed under prior SBIR funding agreements and is authorized under 10 USC 2304(b)(2) or 41 USC 253. A separate justification and authorization (J&A) document is not required, pursuant to 10 USC 2304(b)(3) or 41 USC 253.

*m.* There is no limit on the number, duration, type, or dollar value of Phase III awards made to a business concern. There is no limit on the time that may elapse between a Phase I or Phase II award and Phase III award or between a Phase III award and any subsequent Phase III award. Also, the small business size limits for Phase I and Phase II awards do not apply to Phase III awards.

*n.* A Phase III award is, by its nature, a SBIR award, has SBIR status, and must be accorded SBIR data rights. If a SBIR awardee wins a competition for work that derives from, extends, or logically concludes that firm's work under a prior SBIR funding agreement, then the funding agreement for the new competed work must have all SBIR Phase III status and data rights. SBIR legislation directs that an agency allow a SBIR awardee participating in the third phase of the SBIR program continued use, as a directed bailment, of any property transferred by the agency to the Phase II awardee. A federally funded Phase III award (normally a Government contract) would include appropriate property clauses. However, a non-federally funded Phase III agreement would not address Government property. A separate bailment agreement would need to be made between the Government and the contractor.

*o.* The SBIR Program Policy Directive points out that Congress intends that agencies that pursue R&D or production developed under the SBIR Program, give preference, including sole source awards, to the awardee that developed the technology. Agencies that intend to pursue R&D, production, services, or any combination thereof of a technology developed by an SBIR awardee of that agency, with an entity other than that SBIR awardee, must notify the SBA in writing prior to such an award. This notice requirement also applies to technologies of SBIR awardees with SBIR funding from two or more agencies where one of the agencies determines to pursue the technology with an entity other than that awardee. This notification must include, at a minimum:

(1) The reasons why the follow-on funding agreement with the small business company is not practicable.

(2) The identity of the entity with which the agency intends to make an award to perform research, development or production.

(3) A description of the type of funding agreement under which the research, development, or production will be obtained.

*p.* The SBA may appeal the decision to the head of the contracting activity. If the SBA decides to appeal the decision, it must file a notice of intent to appeal with the contracting officer no later than five (5) business days after receiving the agency's notice of intent to make award. Upon receipt of the SBAs notice of intent to appeal, the contracting officer suspends further action on the acquisition until the head of the contracting activity issues a written decision on the appeal. However, the contracting officer may proceed with award if he or she determines in writing that the award must be made to protect the public interest.

*q.* In order to facilitate the rapid transition of SBIR technologies from Phase II to Phase III, the Navy has pioneered the use of the indefinite delivery/indefinite quantity (ID/IQ) type contract for Phase III efforts. See also Federal Acquisition

Regulation (FAR) subpart 16.5. This approach allows multiple sponsors to contract with SBIR companies for Phase III follow-on efforts in an efficient and expedited manner through the use of individual task or delivery orders. This approach eliminates the necessity of writing multiple contracts with the same contractor for a particular technology. The basic ID/IQ contract can be written for a maximum 10 year term (five (5) years basic plus options). See Defense FAR Supplement (DFARS) 217.204(e)(i). This contracting approach can save a significant amount of procurement administrative lead time over the life of the contract.

r. Table 1–1 illustrates the basic differences between the SBIR and STTR Programs within the above three-phase structure.

	<b>SBIR</b>	<b>STTR</b>
<b>Phase I</b>	Six Months, \$100,000 Maximum Four-Month Option (at Government’s discretion if Phase II proposal is selected), \$50K maximum, to fund interim Phase II efforts	Six Months, \$100,000 Maximum No options
<b>Phase II</b>	Two Years, \$750,000 Maximum	Two Years, \$750,000 Maximum
<b>Phase II PLUS</b>	One Year, \$500,000 Maximum (subject to third-party matching funds)	Not Available
<b>Phase III</b>	No Time Limit No SBIR Funds	No Time Limit No STTR Funds

s. For more information about Army-specific SBIR/STTR programs, visit <http://www.armysbir.com> or the DOD SBIR/STTR Program Office Web site at <http://www.acq.osd.mil/sadbu/sbir>.

### **1–22. Human and animal use in research**

All conducted, contracted, sponsored or managed research involving human subjects, human anatomical substances, or animals must be conducted in accordance with Federal, DOD and Army regulations. The Army Human Research Protections Office, DASG–HRP, 2511 Jefferson Davis Highway, Suite 11512, Arlington, VA 22202 has direct oversight.

### **1–23. Technology maturity and transition**

#### *a. Technology transition.*

(1) The normal acquisition framework supported by S&T is a deliberate process. Potential requirements are analyzed; alternatives examined; and technology development strategies developed, funded, and executed in order to transition to an acquisition program for system development, demonstration, testing, and fielding to provide a capability for a future warfighter. The normal maturity for a technology to transfer from S&T to an acquisition program is TRL 6 which is the demonstration of the system/subsystem model or prototype in a relevant environment. This transition normally takes place prior to Milestone B upon completion of an ATO.

(2) There are also many short term science and technology efforts that support fielding technologies as soon as possible to support immediate requirements from today’s warfighters. In these instances, applications of existing and threshold technologies are rapidly developed to meet urgent needs. This is particularly important during periods of conflict when warfighters must respond to new technologies used by adversaries.

(3) In both of these processes there must be a close relationship between the user, the technology developer, and the system developer. This relationship ensures that the technology transitioned is delivered on time, is what was expected, and provides the expected capabilities to the warfighter. The primary tool used to foster this relationship and ensure timely technology delivery is the technology transition agreement (TTA). This agreement between the technology provider and the system developer, with user input, explicitly identifies the technology products to be delivered, the schedule for delivery, the maturity of the technology at delivery, and the metrics that will be used to demonstrate that maturity. This integration of technology developer, system developer, and user reduces the total time it takes to get technology from the laboratory to the field, a key acquisition goal. A TTA is required for all ATO products at least 12 months before completion of the ATO.

(4) The TTAs should be used whenever appropriate to ensure that the right technologies are matured and ready to transfer to acquisition programs at the appropriate time. The TTA elements and template can be found in the DOD Technology Readiness Assessment Deskbook, appendix G ([http://www.dod.mil/ddre/doc/tra\\_deskbook\\_2005.pdf](http://www.dod.mil/ddre/doc/tra_deskbook_2005.pdf)).

*b. Technology maturity assessment.* The determination and reporting of technology maturity at Milestones B and C is required by DODI 5000.02. As the component S&T Executive, the DASA (R&T) is responsible for conducting a technology readiness assessment (TRA) at all Milestone B and Milestone C decisions for MDAPs. This assessment has become even more important with recent statutory requirements for the MDA to certify to Congress that the technologies of an MDAP have been demonstrated in a relevant environment prior to approving a Milestone B. The TRA serves as the gauge of this readiness for the MDAs certification at both Army and OSD levels. The TRA process is a collaborative effort carried out among the Program Office, the S&T community, and (for ACAT ID programs) the Deputy Under Secretary of Defense (Science and Technology) (DUSD (S&T)).

(1) Approximately 12 months prior to a Milestone B or C ASARC or DAB, the PM should meet with the Office of the DASA (R&T) to discuss and develop a TRA implementation plan for accomplishing the steps involved in reporting technology maturity. The TRA implementation plan will include the schedule for submittal of candidate critical technologies, various briefings to Army, OSD (if required) and Independent Review Team officials (if required), draft report submittals and the PMs final technology maturity assessment (TMA) report due date. The TRA implementation plan for ACAT ID programs will be coordinated with the Office of the DUSD (S&T) to ensure they agree with the rigor and timelines planned for the assessment.

(2) The next step in the assessment process is to determine the program's critical technologies (CTs). The PM should develop a listing of proposed CTs with a rationale why each is a CT and an explanation of the function of each CT in the system or subsystem. The DOD TRA Deskbook ([http://www.dod.mil/ddre/doc/tra\\_deskbook\\_2005.pdf](http://www.dod.mil/ddre/doc/tra_deskbook_2005.pdf)) provides detailed guidance. The PM should coordinate this list with the DASA (R&T). For ACAT ID programs, once agreement is reached within the Army on what the correct CTs are for the system in question, the DASA (R&T) will coordinate this information with the DUSD (S&T). Then the PM continues to assess the current TRL rating of each technology and prepare the TMA.

(3) The TMA is the basis for the Army's TRA accomplished by the DASA (R&T). The TMA is prepared (appendix B is a sample format) by the PM responsible for the program under review, with assistance from appropriate participating S&T organizations. The TMA is forwarded through PM/PEO/MATDEV channels to the DASA (R&T). The DASA (R&T) conducts an independent review (if needed), prepares the TRA using the TMA report as a baseline and, considering the independent review team report and staff input, submits his technology assessment finding to the AAE.

(4) For ACAT ID systems, the TRA also goes to OSD as prescribed in DODI 5000.2, the DOD Defense Acquisition Guidebook, and the DOD Technology Readiness Assessment Deskbook. The final TMA is due to DASA (R&T) no later than 90 days prior to the date of the ASARC/DAB that will approve the Milestone B or C event for which the technology assessment is required. For ACAT ID programs (or programs likely to be classified as ACAT ID before their upcoming milestone decision date), the DASA (R&T) will submit a copy of the TRA to the DUSD (S&T) at the same time the report is submitted to the AAE. Once satisfied with the TRA report, the AAE will forward the original TRA to the DUSD (S&T). For ASARC (non-DAB) programs, a TRA will also be required. It will be approved by the DASA (R&T) and submitted to the AAE to inform the milestone decision. For other (non ASARC or DAB) programs, the TRA will be approved by the MDA.

#### **1–24. International cooperative programs**

It is DOD policy to consider opportunities for international cooperative research, development, and acquisition (ICRDA) in every phase of the systems acquisition process. One type of international cooperative programs is one in which technology is developed or matured in cooperation with one or more foreign nations. Such a technology development program takes place via an international cooperative research and development agreement. Such an agreement can be either a standalone technology development agreement for an unspecified military application or preferably an agreement that is an integral part of a system's acquisition strategy and is executed during the Pre-Systems Acquisition phase of the system's life cycle. The key objectives of such technology development and ICRDA programs are to reduce weapons system acquisition costs through cooperative development, production, and support; and to enhance interoperability with coalition partners. (See DODI 5000.02, enclosure 10, para 5, for specific ICRDA agreements' guidance; the Defense Acquisition Guidebook, Section 11.2; AR 70–41; and para 8–5 of this pamphlet.)

#### **1–25. Technology information papers**

*a.* Technical information papers (TIPs) and executive summary's (EXSUMs) are developed and used to identify and collect domestic and foreign government, industry, and academic sector technological investments; and evaluate their relevance and capability to meet the Army's S&T strategic vision and direction as delineated in the ASTMP in accordance with 10 USC 2364 and DODI 5000.02, enclosure 2, paragraphs 3 and 4. This includes, but is not limited to, specific technologies to support current or proposed ATOs.

(1) A TIP is a standardized format to report an external science, technology, or military item that may satisfy, in whole or in part, a U.S. Army requirement as a result of an EXSUM or to meet a Future Force requirement. A TIP should be developed only by request from an IPT or customer.

(2) An EXSUM describes a technology find for the purpose of acquiring further interest from a potential user/customer, in other words Army scientist or REF/PM/PEO in need of a Current Operations requirement.

*b.* Appendix C provides sample TIP and EXSUM formats.

*c.* The TIPs and EXSUMs are documented through Global S&T Watch's (GSTWs) TIPs-on-line (TOL), a web-based relational knowledgebase that allows outside the continental United States (OCONUS) and continental United States (CONUS) U.S. Government (USG) organizational elements or USG-related organizations to upload summary information on foreign technology developments. TOL is managed by the Director, International, Interagency, Industry and Academia (3IA) Directorate, U.S. Army RDECOM SOSI. GSTW/TOL is a beta test information technology system that is managed by DASA (R&T) that will be migrated into the Army STEM system, an Army collaborative enterprise, by FY 2008. Beginning in FY 2008, TIPs and EXSUMs will be documented via STEM.

*d.* The TIPs or EXSUMs may be submitted by either U.S. Army or other USG sources. Examples of other sources are National Laboratories, U.S. Government agencies, U.S. academia, U.S. Government contractors, or designated technology search companies.

*e.* The TIPs or EXSUMs directly submitted by commercial companies wishing to do business with the U.S. Army are considered special cases. These are handled in accordance with AMC Pam 70–8 covering unsolicited proposals.

*f.* The TIPs and/or EXSUMs will be reviewed by relevant IPTs to determine appropriate level of interest. EXSUMs determined to have a high level of interest by an IPT will be converted to TIPs by the originator. The IPT/customer will inform the originator of the level of interest and the resulting course of action to be taken reference the TIP or EXSUM.

*g.* The potential User/Customer, that is a MATDEV, Army Commander's center, laboratory and/or institute, and PMs, can request a TIP based on an EXSUM. Potential User/Customers are required to provide feedback to the organization providing the TIP and to 3IA.

## **Section VII**

### **Critical Program Information Protection Planning**

#### **1–26. Program protection plans**

*a.* Program protection planning is a total managerial, life cycle approach. It applies to all Army projects and programs, including SAP, where the MATDEVs or PM identifies critical program information (CPI). This section provides procedural guidance for MATDEVs and PMs to implement program protection after identifying CPI and developing the required documents that demonstrate protection of identified CPI.

*b.* When entering the Defense acquisition management framework (see fig 1–1), information and technologies are subject to CPI review. Per DODI 5200.39, CPI comprises program information, technologies, or systems that, if compromised, would degrade combat effectiveness, shorten the expected combat-effective life of the system, significantly alter program direction.

*c.* Program protection planning safeguards CPI found in the pre-systems acquisition phase and the systems acquisition phase of the Defense acquisition management framework. It results in a comprehensive plan that can be implemented and integrates activity from all security disciplines, counterintelligence (CI), foreign disclosures, system security engineering (for example, anti-tamper), and other methods to protect CPI from intelligence collection and unauthorized disclosure.

*d.* When developing the Technology Development Strategy or Acquisition Strategy, the MATDEV or PM determines, with the assistance of DCS, G–2 (DAMI–CD/Army Research and Technology Protection Center (ARTPC)) and program technical experts, if CPI is present. The MATDEV or PM approves the CPI. Only information, technologies, and systems that are or will be under the direct control of the MATDEV or PM during the pre-systems acquisition phase or systems acquisition phase of the project/program are considered. Items received from a supporting organization are the responsibility of that organization to assess for CPI.

*e.* If CPI is identified in a pre-systems acquisition project or systems acquisition program, the MATDEV or PM is required to develop and submit a program protection plan (PPP) to the MDA for review. The PPP is a required document, if applicable, at Milestone B and C reviews. If no CPI is identified, then the MATDEV or PM makes this determination in writing for review by the MDA.

*f.* The MATDEV or PM convenes an IPT to develop a PPP. The IPT should consist of personnel with expertise in program management; capability requirements (in other words, CBTDEV); technology protection specialist (DCS, G–2 DAMI–CD/ARTPC); program security management; MATDEV technology development/integration engineer or special-

ist; system design/engineering; foreign disclosure; counterintelligence (902d Military Intelligence Group); test and evaluation; modeling and simulation; and analysis. The PPP is intended to be the basis for protection of project or program CPI. The IPT should be responsible for, but not limited to—

- (1) Preparing, maintaining, and updating the PPP in accordance with program or project requirements and schedules.
- (2) Identifying vulnerabilities to the CPI over the life cycle of the project or program.
- (3) Identifying and implementing security, foreign disclosure, counterintelligence, and system security engineering countermeasures to address vulnerabilities of CPI.
- (4) Developing tailored guidance that the program or project can use to implement the countermeasures identified in the PPP (for example, changes to standing operating procedures (SOPs), changes to system training, issuance of program management decision memoranda, and so forth).

(5) Continually evaluating the protection posture and effectiveness of implemented countermeasures to account for program or project maturity and changes or evolving threats.

(6) Documenting lessons learned in the execution of program or technology protection efforts.

g. The IPT should use the PPP to develop tailored guidance that is disseminated and implemented throughout the project/program. Given the PPP identifies the CPI, vulnerabilities, and specific countermeasures, access to it should be limited to only those required (in other words, the IPT members). Broadly disseminate guidance for protecting the CPI in a manner facilitating successful implementation.

h. DODI 5200.39 provides the minimum required elements that must be addressed in the PPP. The required elements of the plan include the following:

(1) *Project/program/system description.* The description should identify: the project/program objective, timeline, key technologies and components; mission, military value, and expected operational parameters; and supported or supporting acquisition programs.

(2) *Critical program information to be protected.* This list includes technologies and systems that are or may become resident in a particular acquisition program, project, or product that are approved by the MATDEV or PM and identified through an assessment facilitated by the DCS, G-2 (DAMI-CD/ARTPC). The CPI will be specific to the project/program, and must be placed under the control of the project/program. The CPI section will identify the format of the CPI (document, end item, or knowledge-based) and the locations where the CPI are handled, processed or stored, as well as specific location where the CPI resides in the end item (for example, embedded in guidance software).

(3) *Threats to critical program information.* Threat information is available to designated project/program personnel in the form of the Multidiscipline Counterintelligence Threat Assessment (MDCITA). The MDCITA is requested through an intelligence production requirement (IPR). The MATDEV or PM should submit MDCITA requests for validation through the supporting senior intelligence officer (SIO). Project/program personnel are encouraged to submit an IPR as early as practical. The MDCITA should be preliminary in nature and should be updated at the MATDEVs or PMs request when new or more specific information becomes available.

(4) *Vulnerabilities of critical program information to collection threats.* This involves review of the current protection of the CPI according to their location(s)/nature/format(s), to determine susceptibilities to intelligence collection. Vulnerability is a susceptibility of CPI in the presence of a threat.

(5) *Countermeasures.* Develop security, foreign disclosure, counterintelligence, and system security engineering countermeasures where CPI is vulnerable. Specifically tailor countermeasures to the CPI for each format and at each location in the project or program and integrated with one another to ensure a holistic protection posture is developed. For CPI residing in end items, consider system security engineering measures such as anti-tamper. Countermeasures will be over and above what is required under other regulation (for example, AR 380-5) and will be predicated on a concept of enforced need to know. The countermeasures section will also include potential mechanisms for implementation (for example, changes in SOPs, operator training, formal memoranda from MATDEV or PM, and so forth) as well as the program element responsible for implementing the guidance.

(6) *Technology assessment and control plan/summary statement of intent.*

(a) The technology assessment and control plan (TA/CP), a DOD-mandated technology protection document, is a required element of the PPP. The TA/CP traditionally identifies and describes sensitive program/system information, the risks involved in foreign access to such information, the impact of the international transfer of the resulting system, and the development of measures to protect the U.S. technological or operational advantage represented by the system. In satisfying the TA/CP element of the PPP, PMs should address any international (government-to-government) cooperative production, foreign military sales (FMS) co-production and/or licensed co-production agreement that involves program CPI or may involve potential program CPI. AR 550-51 is the Army issuance for a TA/CP requirement. AR 380-10 provides the TA/CP format and instructions for filling it out. ASA (ALT) (SAAL-ZS) is the validating authority for TA/CPs that are included as part of PPP submissions.



(b) The TA/CP is required for all international agreements except for cooperative research and development agreements which use the summary statement of intent (SSOI) per DODI 5000.02 enclosure 10, paragraph 5, and the Defense Acquisition Guidebook (DAG) sections 8.4.3 and 11.2.2.1. Paragraph 8–5e, below, provides additional details regarding the relationship of the TA/CP, SSOI, and program protection as they apply to international government-to-government cooperative research and development agreements. ASA (ALT) (SAAL–ZN) is the approving authority for SSOIs that are included in international cooperative R&D agreement request authority to develop (and negotiate) submissions.

(7) *Classification guides.* The security classification guide (SCG) is governed by AR 380–5 and is included as an annex to the PPP. The PMs should develop SCGs as early as possible in the pre-systems acquisition program or systems acquisition program. It is strongly encouraged that PMs develop SCGs for unclassified programs in the event there are changes that warrant security classification of program information.

(8) *Identification of protection costs.* Identify any additional resource cost requirements resulting from upgrading specific security countermeasures (SCM) to safeguard vulnerable CPI from the collection threat.

(9) *Foreign disclosure.* AR 380–10 provides policy governing the disclosure of classified military information (CMI) to foreign governments or international organizations. A pre-systems acquisition or a systems acquisition disclosure authority letter (DDL) is included as part of the PPP and addresses the foreign disclosure requirements of the plan. The intent of these DDLs is to delegate authority to disclose CMI in support of international government-to-government efforts associated with pre-systems acquisition and systems acquisition projects/programs, to include FMS endeavors. Drafting of separate DDLs (as necessary) for other international projects/programs that may be associated with the acquisition effort, such as foreign liaison officers and cooperative program/project personnel, should be consistent with existing documentation. DCS, G–2 (DAMI–CDD) is the approval authority for DDLs that are included as part of a PPP submission. AR 380–10 provides the format and instructions for the development of DDLs.

(10) *Foreign military sales (to include co-production).* The ASA (ALT) is responsible for the formulation of the Army’s weapon systems export policies for approval by the Army leadership. These policies address FMS of Army weapon systems, to include FMS co-production potential. PMs facilitate the formulation of these policies by providing ASA (ALT) recommendations on specific data, systems and/or technologies that should not be transferred in conjunction with any FMS arrangement.

(11) *Follow-on support.* Once the PPP is approved, the IPT begins to implement the countermeasures identified in the PPP through the most appropriate mechanism (for example, changes to SOPs, changes to system training, issuance of program management memoranda, and so forth). Procedures for monitoring the effectiveness of countermeasures will be developed and used by the program to continually evaluate the protection posture.

i. The ARTPC is the DCS G–2 lead for technology and program protection planning support to Army laboratories, engineering centers, and acquisition programs. In this capacity, the ARTPC will provide all necessary support for the identification of CPI, and the development and implementation of PPPs.

j. The 902d Military Intelligence Group, U.S. Army Intelligence and Security Command (INSCOM) provides dedicated CI support to programs possessing CPI.

## **1–27. Program protection plan submittal**

a. *Program protection plan criteria guide.* The PPP preparation guide in figure 1–12 is provided to assist program officials. This guide also assists officials who are responsible for the review of PPPs.

b. *Submittal of program protection plans for milestone decision authority review.* For programs containing CPI:

(1) *Pre-systems acquisition programs.* MATDEV or PMs submit PPPs to DCS G–2 (DAMI–CD) when CPI has been identified for review and recommendation for or against approval. For ATOs, ATDs, and JCTDs, PPPs should arrive at DCS G–2 (DAMI–CD) no more than 9 months after formal designation as such. The MDA is the final review authority for pre-systems acquisition project PPPs.

(2) *Systems acquisition programs/ACATs.* Given the dynamic nature of program protection, periodic reviews of the PPP may be required. Generally, these reviews will be at the request of DCS G–2 (DAMI–CD). At a minimum, PMs submit PPPs to DCS G–2 (DAMI–CD) for review and recommendation for or against approval at the program’s Milestones B and C reviews. PPPs should arrive at DCS G–2 (DAMI–CD) no less than 30 calendar days prior to Milestones B and C reviews. DCS G–2 (DAMI–CD/ARTPC) will staff the PPP within HQDA, as required. DCS G–2 (DAMI–CD) will forward the PPPs for ACAT ID programs to the Office of the Under Secretary of Defense for Intelligence prior to the DAB review. The MDA is the final review authority for the Milestones B and C PPP.

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## **PROGRAM PROTECTION PLAN (PPP) PREPARATION GUIDE**

The following criteria are provided to assist project and program officials prepare PPPs for programs containing critical program information (CPI):

1. Does the summary description of the system:
  - a. Identify the objective, potential technological advance, and resulting military capability?
  - b. Identify the operational concept and proposed mission role for the system, technology, or capability?
  - c. Identify supported programs/projects?
  - d. Identify supporting programs/projects?
  - e. Identify planned or actual system, technology, or capability transition and transfer points, for example, first unit equipped (FUE)?
2. Does the description of the CPI:
  - a. Identify the impact of compromise of the CPI?
  - b. Identify the form (for example, document, knowledge, or end item) in which the CPI exists?
  - c. Identify the locations or facilities where, and time periods when, CPI will be developed, handled, processed, or stored?
3. Does the threat analysis:
  - a. Identify which countries, organizations, and/or individuals have the intent and capability to collect the CPI and the purpose for collection (copy or counter)?
  - b. Indicate which other entities are developing technology in this area to include the level of sophistication of that technology development?
  - c. Identify threat collection efforts targeting similar DOD programs, systems, technologies, or capabilities?
4. Does the vulnerability analysis:
  - a. Identify the existing protection posture at locations where CPI is developed, handled, processed, or stored?
  - b. Identify any person or persons who are a potential threat or concern (for example, foreign nationals) with access to the CPI?
  - c. Indicate where, when, and under what conditions the CPI will be vulnerable to compromise or loss due to the identified threats?
5. Does the countermeasures concept:
  - a. Commit the program to an approach of enforced need to know regarding CPI?

**Figure 1–12. PPP preparation guide**

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b. Identify specific measures that provide protection of the CPI over and above what is required with other guidance (for example, AR 380-5)?

c. Identify the target audience and proposed means to implement the countermeasure?

d. Indicate who is responsible for developing guidance and implementing the countermeasure?

e. Detail the means by which the effectiveness of the countermeasures will be assessed after implementation?

f. Indicate who is responsible for monitoring and/or measuring the effectiveness of countermeasures?

6. Does the Security Classification Guide:

a. Address the identified CPI?

b. Define how the CPI-related material will be classified or marked to limit distribution and thereby control the information flow to unauthorized activities, for example, FOUO or other technical Controlled Unclassified Information marked for limited distribution IAW DOD Directive 5230.24, Distribution Statements on Technical Documents?

7. Does the Technology Assessment Control Plan (TA/CP) / Summary Statement Of Intent (SSOI):

a. Indicate whether there is an established government-to-government international cooperative research, development, and acquisition (ICRDA) or international cooperative R&D (ICRD) agreement associated with the CPI of or potential CPI for the acquisition of the system.

b. Include or reference the international agreement as well as the TA/CP and DDL or SSOI and DDL that are associated with that international agreement.

c. Indicate whether there is any intent to pursue an ICRD or ICRDA government-to-government agreement during either the pre-acquisition systems (Milestone A) or systems acquisition phase (Milestones B and C) of the Defense acquisition management framework that may involve potential CPI.

d. Clearly describe the U.S. CPI that will be included in the cooperative development effort and thus must be shared with the foreign government partner.

8. Does the PPP and annexes:

a. Demonstrate a holistic, life-cycle risk management approach?

b. Identify any discrepancies in protection among the countermeasures and the reason for the discrepancy?

c. Delineate responsibilities for protection relative to appropriate implementers or the proponent for the specific protective measure?

d. Identify procedures to be followed to update and validate the concept?

**Figure 1–12. PPP preparation guide—continued**

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## Section VIII

### Technical Controlled Unclassified Information Security

#### 1–28. Guidelines for the disclosure of technical controlled unclassified information

*a. Background.* The following provides background information and guidelines to be used in making disclosure determinations of technical controlled unclassified information (CUI) to foreign entities.

(1) *Critical unclassified information.* The CUI is official information that is unclassified, but that has been determined by designated officials to be exempt from public disclosure under the authority of 5 USC 552 (Freedom of Information Act (FOIA)), as amended. The FOIA, implemented by DODD 5400.07, provides nine categories of information that can be exempt from public disclosure. Controlled unclassified technical information may be exempted from FOIA requests in accordance with exemption 3 (information that a U.S. statute specifically exempts from disclosure).

(2) *Technical CUI.* 10 USC 130, which falls under Exemption 3, provides the Secretary of Defense with the authority to withhold from the public “unclassified technical data with military or space application in the possession of, or under the control of, a DOD Component which may not be exported lawfully without an approval authorization, or license under the Export Administration Act or the Arms Export Control Act.” There must be a determination that the technical data at issue would disclose “critical technology with military or space application.” DODs policy guidance is found in DODI 5230.24 and DODD 5230.25. The DODD 5230.25 defines critical technology as technology consisting of:

(a) Arrays of design and manufacturing know-how (including technical data);

(b) Keystone manufacturing, inspection, and test equipment;

(c) Keystone materials; and

(d) Goods accompanied by sophisticated operation, application, or maintenance know-how that would make significant contribution to the military potential of any country or combination of countries and that may prove detrimental to the security of the United States.

(3) *Critical technologies.* Technologies can be considered critical if they are capability enabling, and if compromised, could cause significant degradation in combat effectiveness, shortening of the expected combat-effective life of the system, significantly alter program direction, or enable an adversary to copy or reverse engineer a unique technology or capability. Pre-systems acquisition technologies that enable new capabilities can be considered critical when an application is demonstrated for the technology in an operational setting, or in support of a transition agreement with a program manager. Critical technologies can be classified or unclassified technology.

(4) *Foreign release.* DODD 5230.25 also states that the directive does not pertain to, or affect, the release of technical data by the DOD Components to foreign governments, international organizations, or their respective representatives or contractors, pursuant to official agreements or formal arrangements with the U.S. Government, or pursuant to U.S. Government-licensed transactions involving such entities or individuals. In the absence of such U.S. Government-sanctioned relationships, however, the directive does apply. However, the provisions of the international cooperative research, development, and/or acquisition agreement apply as do the distribution markings found in DODI 5230.24.

(5) *Distribution markings.* DODI 5230.24 requires that all DOD Components mark their technical documents with the appropriate distribution statement and export control notice before primary and secondary distribution.

(6) *Handling Instructions.* The CUI information must be secured in a manner that precludes unauthorized access (for example, locked in a desk drawer, file cabinet, or room to which access is controlled). It should be transmitted using secure voice or encrypted e-mail, unless the originator waives this requirement. It may be mailed using first class or parcel post. The CUI documentation may be destroyed by shredding or tearing into small pieces so that reconstruction is difficult.

*b. Authority to disclose technical critical unclassified information.*

(1) Department of the Army agency heads, or Army Command (ACOM), Army Service Component Command (ASCC), and Direct Reporting Unit (DRU) commanders, who have applied a limited distribution statement in accordance with DODI 5230.24 to the technical unclassified information, have the authority to disclose that CUI. This authority may be further delegated in writing by DA agency heads and ACOM, ASCC, or DRU commanders to the lowest level that may be an originator or proponent (see para 1–32) of CUI consistent with good security practices.

(2) In accordance with AR 380–10, paragraph 2–10, the foreign disclosure officers will facilitate the administrative processing of all requests for U.S. information that may involve the disclosure of CUI.

(a) A DDL will be used to spell out and define the technical CUI which will and will not be disclosed under international cooperative research, development, and acquisition agreements, annexes, and/or other activities, such as the Engineer and Scientist Exchange program (ESEP) participants and cooperative program/project personnel assignments. See AR 380–10 for template DDL formats.

(b) AR 380–10, paragraph 2–9, that the DCS, G2 or their designee grants local commanders and agency heads authority to approve DDLs that only authorize the disclosure of unclassified information.

## **1–29. Guidelines for the disclosure of technical critical unclassified information**

*a.* For disclosure of technical CUI to foreign governments, international organizations, or foreign contractors that are carried out under an U.S. Government international agreement or arrangement, or an U.S. Government-approved export authorization:

(1) Although designed as an aid in processing disclosure requests for classified military information, the following criteria may also be used in rendering a decision regarding the disclosure of technical CUI to foreign governments, international organizations, or foreign contractors. Before authorizing CUI disclosures, the individual delegated authority to disclose technical CUI by DA agency heads or ACOM, MSC, ASCC, DRU commanders, must ensure that the contract, agreement, or arrangement contains the requisite access, use, and distribution clauses required before disclosing CUI with another government, international organization, or foreign contractor.

(2) If technical CUI belonging to another DOD Component is resident in the technical CUI document proposed for disclosure, the DOD Component proposing to disclose the other DOD Component's technical CUI is responsible for obtaining the approvals for the disclosure of that data from the originating DOD Component.

(3) If the disclosure of CUI may impair or constitute a threat to national security, CUI disclosure authorities are encouraged to seek input from the DASA (DE&C) (SAAL–NC) and the Deputy Chief of Staff, G–3/5/7.

*(a)* The DASA (DE&C) (SAAL–NC) and DCS, G–3/5/7 can provide advice and assistance regarding the political considerations or ramifications of a decision to approve or deny a request.

*(b)* The DASA (R&T) (SAAL–ZT) can provide advice and assistance on technical considerations of a decision to approve or deny a request.

*(c)* The Defense Intelligence Agency (TA–5 Advanced Technologies/Technology Transfer Division) can provide advice and assistance regarding the intelligence risks and ramifications of a decision to approve or deny a request.

*b.* For disclosure of technical CUI to non-government persons not affiliated with an Army contract, or international agreement or arrangement:

(1) For the purposes of this guidance, non-government persons are defined as all private persons, such as private foreign citizens not representing a foreign government, international organization, or foreign contractor, as well as U.S. private citizens.

(2) Regardless of the means by which a request involving the potential disclosure of technical CUI from a nongovernment person enters the U.S. Army, the action command or agency should apply its local procedures in processing the request.

(3) Impact of the disclosure of technical CUI to non-government/authorized persons is clear; it constitutes release in the public domain. To determine if a limited distribution statement/caveat should be removed, an evaluation must be made by the originator or proponent to ensure that the public disclosure of the information would not jeopardize U.S. National Security interests. Commanders or agency heads delegated authority to disclose technical CUI they originate are encouraged to seek advice from the Defense Intelligence Agency (TA–5 Advanced Technologies/Technology Transfer Division). The TA–5 can provide advice and assistance regarding the intelligence risks and ramifications of a decision to approve or deny a request.

(4) After completing the evaluation outlined in the paragraph above, the originator or proponent authorizing the disclosure is responsible for removing the limited distribution statement caveat from the document prior to release and notifying the Defense Technical Information Center to change the limited distribution statement to “Distribution Statement A (Approved for Public Release; Distribution Unlimited).”

*Note.* In removing the limited distribution statement caveat from the document, the originator or proponent must ensure that the criteria for originally assigning the limited distribution statement no longer apply to the technical data, particularly the export control provisions under the International Traffic in Arms Regulation of the Department of State and the Export Administration Regulation of the Department of Commerce.

*c.* The U.S. contractors and academia who possess technical CUI stemming from participation in a DOD technology development program (excluding basic research), pre-systems acquisition, systems acquisition, and/or sustainment effort, which desire to disclose (export) this information to any foreign recipient (for example, employment of non-U.S. person such as a student, researcher, and so on), must apply for and obtain an export authorization from the appropriate export authority: the Department of State; Directorate of Defense Trade Controls; or the Department of Commerce, Bureau of Industry and Security. Any such application must include a statement that the technical data/information for which export authorization is sought are controlled by the DOD.

## **1–30. Policy considerations**

The originator or proponent of the technical CUI should consider the following criteria in rendering a disclosure decision:

*a.* The potential foreign recipient's support for U.S. foreign policy and political objectives.

- b. The potential of the disclosure to deny or reduce an influence or presence in the country that is hostile to U.S. interests.
- c. The effects of the regional and global strategic balance if the disclosure is approved.
- d. Whether or not the country has a defense treaty or political agreement with the United States.
- e. The political benefits that could accrue to the United States.
- f. Whether or not the disclosure assists the U.S. in obtaining or securing base, transit, and over flight rights or access to strategic locations.
- g. Other countries to which the U.S. has disclosed the information.
- h. The possible reaction of other countries in the region to the proposed disclosure.
- i. Whether or not the U.S. is the first supplier of the information.
- j. The possibility that the information could fall into the hands of terrorists.
- k. The impact of the disclosure on the country's economy.
- l. Does the disclosure establish an unfavorable political precedent?
- m. Does the disclosure support U.S. foreign policy objectives?

### 1–31. Military considerations

The originator or proponent (see para 1–32) of the technical CUI should consider the following criteria in rendering a disclosure decision.

- a. The country's ability and willingness to protect sensitive U.S. information.
- b. The degree of participation in collective security by the U.S.
- c. How the disclosure would affect coalition warfare in support of U.S. policy.
- d. How the disclosure would increase the recipient country's offense or defense capability.
- e. How the disclosure would increase the capability of friendly regional forces to provide regional security to assist the U.S. in the protection of strategic line of communication.
- f. How the disclosure will strengthen U.S. or allied power projection.
- g. To what extent the disclosure is in consonance with U.S. military plans (for example, the COCOM Theater Engagement Plan, Army International Activities Plan, and/or Army Science and Technology Master Plan).
- h. How the disclosure would strengthen the Army Technology Base via quid pro quo resulting from this disclosure.
- i. Whether or not the disclosure is consistent with Army regional Multinational Force Compatibility (see AR 34–1) or interoperability policy.
- j. Whether or not the information supports a force structure requirement.
- k. Can the country's technology base support the information?
- l. To what degree the disclosure counters the country's threat.
- m. What components are classified? What elements are really critical? Does the system or do its components represent a significant advance in the state-of-the-art?
- n. What precedent exists for disclosure of this particular technology or system? Are comparable systems (foreign or domestic) using the same technology already in the marketplace?
  - o. Can the critical technology resident in the system be reverse engineered? If so, what level of effort (in terms of time, funding, and manpower) is required based on the technological capability of the foreign recipient?
  - p. Is the technology application or information resident in one U.S. Army weapons program been leveraged from another U.S. Army weapons program? If so, has the original U.S. Army-weapons PM reviewed and rendered a recommendation on the munitions license request? The technology or information may not be listed as CPI for one program, but not identified as CPI for another program.
  - q. Are there any special considerations involved with the disclosure that requires coordination external to the U.S. Army? For example, communications security, low observable, crypto logic information, and so forth. If so, has proper approvals been obtained?

### 1–32. Controlled unclassified information reference terms

a. *Originator.* The originator is the DOD Component that sponsored the work that generated or received technical CUI on behalf of DA and therefore has the responsibility for determining the distribution of a document containing such technical data. In the case of joint sponsorship, the originator is determined by advance agreement and may be a party, a group, or a committee representing the interested DOD Components.

b. *Proponent.* The proponent is the DOD Component that has primary responsibility for materiel or subject matter expertise in its area of interest or charged with accomplishment of one or more functions.

## Chapter 2 Program Goals

### 2–1. Goals

Every acquisition program establishes program goals (thresholds and objectives) for cost, schedule, performance, and sustainment parameters that describe the program over its life cycle. Program goals will be linked to the DOD Strategic Plan and the Army Campaign Plan.

### 2–2. Objectives and thresholds

*a.* A CBTDEV working group uses results of the Joint Capabilities Integration and Development System (JCIDS) capabilities-based assessment (CBA), integrated architecture gap and interoperability analysis, analysis of alternatives (AoA), and cost-performance tradeoff analyses as inputs to requirements and operational tradeoff analyses that refine system performance threshold and objective key performance parameters (KPPs). The MATDEV participates on the CBTDEV working group and provides essential input to these analysis efforts. The CBTDEV is responsible for conducting the requirements analyses to determine the operational mission performance requirements and to identify where trade-offs might be made to reduce cost, facilitate commercial acquisition, or enhance performance. The analysis may evaluate trade-offs in battlefield performance; computer-based systems performance; logistics readiness; ESOH risks; critical system characteristics; and manpower, personnel, and training constraints. Typically performed during materiel solution analysis (MSA) and technology development (TD) acquisition phases, these tradeoff analyses identify required capabilities for the CDD (or CPD if entering at Milestone C) including system performance thresholds and objectives that are consistent with initial broad statements of operational capability. The CBTDEV working group documents the results of these requirements analyses to provide an audit trail for the analysis supporting the capabilities document (CDD or CPD). The CBTDEV working group initiates a Programmatic PESHE to document ESOH risks identified during the trade-off analysis. The initial PESHE includes a NEPA completion schedule prior to Milestone B to meet the requirements for the PM to document the impacts of the system on the human health and the environment. Note that after the concept has been developed and approved during MSA and TD, working level IPTs typically replace the CBTDEV working group during preparations for Milestone B and beyond. ESOH involvement in identifying and assessing potential hazards and risks at this point in the life cycle and the associated impacts in preparing program life cycle cost estimates is essential.

*b.* The CBTDEV works with the MATDEV and independent analysis team to identify study issues, alternatives, and other factors pertinent to requirements determination. When software is an area of significant risk, Life Cycle Software Engineering Center (LCSEC) staff should be assigned to participate in the analysis IPT and support the MATDEV in identifying critical software requirements and the feasibility of obtaining desired mission performance through software and computer-based solutions. Depending on the issues of concern, the analysis may evaluate trade-offs in battlefield performance; computer-based systems performance; logistics readiness; ESOH risks; critical system characteristics; and manpower, personnel, and training constraints. While the hardware system represents a materiel response to an operational need, the requirements analysis defines satisfaction of the need through determination of an acceptable set of system characteristics and performance measures.

*c.* The CBTDEV and MATDEV use their own analysis teams, TRADOC Analysis Center (TRAC), the Army Materiel Systems Analysis Agency (AMSAA), and/or contract support to provide analytic underpinning for identification of KPPs, other elements of the CDD/CPD, and the test and evaluation master plan (TEMP). The analysis team may use mathematical analysis, advanced warfighting experiments (AWEs), simulations, integrated architectures, or other operations research tools in conducting the trade-off analyses. There is no set format or scope for a requirements tradeoff analysis. The study team should tailor the analysis to address the issues peculiar to the system under review. The MATDEV/PM will fully coordinate with the CBTDEV for approval of any trade-offs that affect requirements/capabilities documented in the CDD/CPD.

*d.* For all ACAT programs, the default threshold value for schedule is the objective value plus six months. The default threshold value for cost is the objective value plus 10 percent. Any tradeoffs outside the range between the objective and threshold values may not be made without MDA approval.

### 2–3. Cost as an independent variable

*a.* Cost as an independent variable (CAIV) is a strategy for optimizing the operational capability of the total force for a given modernization investment. The CAIV strategy treats cost as an input to, rather than an output of, the requirements and acquisition process. The CAIV can be implemented within existing Army structures and organizations and is compatible with the FAR and DOD acquisition policy. See the DOD Defense Acquisition Guidebook for additional information on CAIV.

*b.* The objectives of CAIV are to—

- (1) Optimize the total force for a given level of investment by achieving the best balance among life cycle cost, performance, sustainability, schedule, and risk.
- (2) Establish cost targets early in the acquisition process to have the greatest impact on total life cycle cost.
- (3) Aggressively manage the requirement and acquisition process to produce warfighting systems at dramatically reduced total life cycle cost.
- (4) Provide incentives to contractor and Government personnel to meet cost objectives and discourage pursuit of performance enhancements that are of limited operational value.

*c.* The CAIV strategy presupposes that the requirement and acquisition communities collectively plan and execute cost-performance-schedule-sustainment (CPSS) tradeoffs (for the Army, sustainment is co-equal to cost, schedule, and performance) that provide the rationale for determining realistic and affordable cost, performance, and schedule targets. Targets, with threshold and objective values, are first included in the capabilities documents and in the APB.

*d.* The CAIV applies to all programs regardless of ACAT. The MDA can apply and tailor CAIV to ACAT III programs as appropriate. The CAIV process will be successful when there is early and continuous involvement by the user, CBTDEV, and MATDEV.

*e.* Effective individual and collective CPSS tradeoffs should establish meaningful cost, performance, schedule, and sustainment requirements:

- (1) As appropriate, cost should be considered when developing the ICD.
- (2) The AoA is the initial cost and effectiveness analysis of system alternatives for satisfying requirements identified in the ICD. The AoA process incorporates the tenets of CAIV.
- (3) Realistic cost objectives are based on CPSS tradeoffs conducted during MSA and TD acquisition phases. Cost threshold and objectives will be included in the affordability section of a program's capabilities document, and included in the cost section of the APB. The cost section of the APB includes the program's Total Acquisition costs and Total Life Cycle cost.
- (4) During MSA and TD acquisition phases, a CBTDEV working group develops the program requirements based on the JCIDS CBA and the AoA. The CBTDEV working group provides initial performance requirements and the MATDEV provides initial cost estimates to a MATDEV-led Cost Performance Integrated Product Team (CPIPT). The CPIPT includes members from the CBTDEV working group and industry. Early participation by industry in CPSS analyses under purview of the CBTDEV working group and CPIPT is encouraged.

*f.* The CPIPT executes further tradeoff analyses necessary to establish meaningful, aggressive and achievable CPSS thresholds and objectives prior to Milestone B and initiation of the EMD phase. During EMD, the CPIPT explores in greater detail, the relationships between:

- (1) The cost and performance of anticipated system characteristics;
- (2) The cost and risk of meeting alternative schedule constraints; and
- (3) The cost and design of life cycle support alternatives, including maintenance and support by LCSEC and/or field engineering staff (organic support), by the developer, and by a 3rd party, or a combination of these.
- (4) The ESOH life cycle costs associated with various trade-off analyses.

*g.* In performing these analyses, the CPIPT reviews the military value of performance requirements so as to ensure that CPSS thresholds are established that best balance performance with the cost of achieving that performance. The CPIPT identifies minimum performance levels meeting the user's critical requirement, the increments of performance above these minimum levels that add operationally relevant capability, and the small increments of performance that might be sacrificed without significant impact to achieve large savings in cost. The cost analysis community actively participates in the CPIPT in order to ensure the results of the CAIV analyses are understood and supported by those responsible for developing the Army cost position (ACP). As the CPIPT develops an increasingly better understanding of cost, performance, schedule, and sustainment relationships, the MATDEV defines the ensuing acquisition program structure and the CBTDEV working group refines operational requirements.

*h.* Prior to Milestone B, the CBTDEV working group incorporates the results of the CPIPT tradeoff analyses, the CBTDEV working group, and other studies into the program's CDD (or CPD if starting with Milestone C). Items that should be incorporated include:

- (1) Performance requirements stated as threshold and objective values. Thresholds are the minimum performance level required by the user. Objectives represent a cost effective and operationally relevant improvement in operational capability over the threshold. A subset of performance requirements is identified as KPPs. Failure to meet a KPP threshold is reason to reevaluate the concept or system and to reassess the program.
- (2) Realistic schedule requirements related to first unit equipped (FUE), or initial operational capability (IOC) as appropriate, which consider the cost implications of not meeting the user's preferred schedule.



(3) Cost thresholds and objectives such as threshold and objective for average procurement unit cost (APUC), program acquisition unit cost (PAUC), and average unit operations and sustainment (O&S) cost (AUO&SC).

*i.* During EMD, the CPIPT conducts continuing CPSS tradeoff studies to further refine system requirements and cost estimates. As the system and its requirements become better understood, the CPIPT increases its focus on those issues such as manufacturing, supportability, and producibility, where the alternatives and cost implications could not be adequately considered until the system concept had matured. Output from the CPIPT studies forms the basis for the CPD and acquisition strategy report (ASR) prior to Milestone C.

*j.* The CPSS tradeoffs continue under the CPIPT following Milestone C, throughout the production and deployment (PD) phase leading up to the FRP Decision Review. The CAIV objective during PD is to refine the balance among life cycle cost, performance, schedule, sustainment, and risk.

## **2–4. Acquisition program baseline**

The APB is the MDAs approved program. The APB consists of the program’s key performance, schedule and cost parameters as established by the JCIDs requirements and Army/OSD funding authorities. The DOD Defense Acquisition Guidebook and chapter 10 of this pamphlet provide additional APB information.

*a. Management tools.* Two management tools available to PMs for tracking program progress are:

(1) *Integrated master plan.* The integrated master plan (IMP) is an event-driven plan that documents the significant accomplishments necessary to complete the tasks defined in the statement of objectives (SOO) or statement of work (SOW) and ties the accomplishment to a key program event. Additionally, exit criteria are provided for each significant event to facilitate the assessment of successful completion. The program milestones depicted in the IMP are event oriented and represent integrated product development that encompasses all disciplines (for example, engineering, test, manufacturing, management, and so on). The IMP is oriented by product using the work breakdown structure (WBS) numbering system and contains no calendar information. The IMP is normally contractually incorporated.

(2) *Integrated master schedule.* The integrated master schedule (IMS) is a detailed, time-dependent, networked, task oriented schedule of the effort required to accomplish the complete program and its relationship to the events, accomplishments, and exit criteria identified in the IMP. An integrated program network schedule includes events defined in the IMP, which are detailed to include all of the tasks and activities required to complete each milestone. The IMS is directly traceable to the IMP and the WBS. The Government solicitation should contain an initial draft program IMS that should be limited to major milestones, activities, and events. The offerors proposal should build upon the initial IMS and include a lower level of detail reflecting the specific tasks and activities based on the proposed approach and resources required to develop and/or produce the system. The IMS is not normally part of the contract, but is updated periodically by data submittal.

*b. Preparation and approval.* For all ACAT programs, the PM prepares a new APB for MDA approval prior to an acquisition milestone decision and following a program restructure. The program is required to re-baseline after a program breach. (See the APB Army guidance package in chap 10.)

## **Chapter 3 Acquisition Strategy**

### **Section I**

#### **Overview**

#### **3–1. Introduction**

*a.* The DOD Defense Acquisition Guidebook contains acquisition strategy development and documentation information. The information that follows includes expanded information for PMs to assist with acquisition strategy development and approval.

*b.* Pursuant to AR 70–1, the acquisition strategy is based upon an approved requirement (for example, CDD, CPD). A program’s acquisition strategy is its business and technical management approach designed to achieve program objectives within the resource constraints imposed. It is the framework for planning, directing, contracting for, and managing a program, providing a master schedule for research, development, test, production, fielding, training, modification, post-production management (in other words, sustainment), and demilitarization, as well as other activities essential for program success. The acquisition strategy is developed through a coordinated effort with agencies that support the PM and those that will use and support the system when it is fielded, including organizations that will provide backup and emergency long-term support.

c. A primary goal of the acquisition strategy is to minimize the time and cost it takes, consistent with laws and regulations, common sense, and sound business practices, to satisfy identified, approved needs, and to maximize affordability throughout a program's useful life cycle. Essential to the development of the acquisition strategy, is the need for the PM to perform detailed market research.

d. Each PM must develop and document his strategy to guide program execution from initiation through the re-procurement of systems, subsystems, components, spares, and services, beyond the initial production contract award into post-production support. The strategy must address the PMs total life cycle management responsibility, ending in a consideration of the disposal/demilitarization of the system. Coordination must also occur within the Joint acquisition community when other Services and Joint programs may be affected.

### **3-2. Acquisition strategy report staffing**

a. The program manager documents his/her strategy in the acquisition strategy report (ASR). Every program, regardless of ACAT, must have an ASR. During the ASR development process, coordination must occur with the BTDEV; training developer (TNGDEV); facility developer; testers and independent evaluators; logisticians; life cycle software engineers; environmental, safety, and occupational health staff; human system integrators; joint coordination boards (for Joint programs); and other matrix support organizations.

b. When the program's MDA is the AAE or the Defense Acquisition Executive (DAE) (ACAT/IAM programs), the ASR will undergo HQDA staffing. The AAE will provide Army approval prior to final DAE/ASD (NII) approval.

c. Typically conducted by the program's Department of the Army system coordinator (DASC), HQDA staffing includes, but is not limited to—

- (1) Office of the General Counsel.
  - (2) Director of Acquisition and Industrial Base Policy (SAAL-PA).
  - (3) Director of Procurement Policy and Support (SAAL-PP).
  - (4) Director of the Environmental Support Office (SAAL-PE).
  - (5) Director of Plans, Programs and Resources (SAAL-RI).
  - (6) Director of System of Systems Integration and Operations, Program Visibility Analysis and Reporting (PVAR) Team (SAAL-SSI)
  - (7) Deputy Assistant Secretary of the Army Acquisition Policy and Logistics (SAAL-ZL).
  - (8) Director of Technology (SAAL-TT).
  - (9) DCS, G-1 Human Systems Integration (HSI) (DAPE-MR).
  - (10) DCS, G-2 (when CPI has been identified).
  - (11) DCS, G-3/5/7 (DAMO-CIC/DAMO-TR).
  - (12) DCS, G-8 System Synchronization Officer.
  - (13) CIO/G6 (SAIS-GKC).
  - (14) DA Small Business Program Office.
- d. Other agencies through which the DASC should consider staffing the ASR prior to AAE approval include—
- (1) The program's TRADOC capability manager (TCM) or CBTDEV.
  - (2) Army Test and Evaluation Executive (DUSA-TE).
  - (3) U.S. Army Test and Evaluation Command (ATEC).
  - (4) Assistant Secretary of the Army (Financial Management and Comptroller) (ASA (FM&C)) (SAFM-BU).
  - (5) Deputy Assistant Secretary of the Army (Cost and Economics) (DASA (CE)).
  - (6) Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) (DASA (ESOH)).
  - (7) Assistant Chief of Staff for Installation Management.

e. Plan on allowing at least two weeks and preferably 30 days for an office to do a legitimate review of your ASR. It is an important document.

## **Section II**

### **Modeling and Simulation**

#### **3-3. Simulation support planning procedures**

a. Modeling and simulation (M&S) can facilitate the acquisition process and may play a critical role in acquisition streamlining. M&S tools may be integral to reducing cost, minimizing risk, and saving time in the acquisition process. They are often integral to optimizing system performance. For these reasons, PMs should continue to incorporate M&S in their acquisition strategy, as much as possible.

*b.* The PMs are responsible for overseeing the planning and use of M&S for their programs throughout the acquisition process. To facilitate this, PMs will use the IPT forum to identify and address M&S issues. The IPT forum promotes integrated planning and lays the foundation for synchronized use of M&S that supports program acquisition. M&S may be a topic discussed in various functional working-level IPTs (WIPTs) or may warrant a special M&S WIPT, if the PM deems necessary. The PMs ensure that there is broad participation in these IPTs by agencies with significant expertise in M&S. The goal is to achieve proper M&S coordination and problem resolution.

### **3–4. Effective modeling and simulation planning**

*a.* Effective M&S planning drives effective M&S employment. If a program's M&S planning warrants, PMs record their M&S roadmap in a simulation support plan (SSP). The PMs make this determination based on the degree to which the program relies on M&S to reduce cost, minimize risk, save time, improve safety, or optimize performance. In assessing whether or not an SSP is warranted, the PM should also consider the following areas: life cycle phase, amount and purpose of research and development funding, cost of preparing and executing a simulation support strategy, remaining service life, ongoing or upcoming modernization, condition and type of existing technical data, and existing relevant M&S infrastructure. The PM assumes responsibility for developing and managing the SSP. The SSP provides sufficient detail to support the program's acquisition strategy. Preliminary M&S planning done by outside agencies, such as TRADOC's CBTDEV working groups, is taken as input and incorporated into the SSP to the extent the PM deems feasible. The PM leverages the M&S expertise of the respective agencies participating in the IPT to develop the M&S plan and shape the SSP. The SSP serves the PM and those agencies supporting the acquisition process by communicating the program's coordinated M&S approach and needs. Update the SSP as necessary to support the program's acquisition strategy. The PM is the SSP approval authority during the system acquisition process. The M&S planning information, including SSPs, should be shared among all PMs to foster greater system-of-system synchronization and efficiencies.

*b.* For more information and guidance, including SSP examples and formats, refer to the Simulation and Modeling for Acquisition, Requirements, and Training (SMART) Planning Guidelines at the Battle Command, Simulation & Experimentation Directorate (DAMO–SB) Web site: <http://www.amso.army.mil>.

## **Section III**

### **Transportability and Deployability**

#### **3–5. Introduction and purpose**

This section provides guidance to implement the Army Engineering for Transportability program. It provides the CBTDEV and MATDEV procedures for use during the materiel acquisition process. These procedures help ensure that systems and equipment (S/E), are designed, engineered, and constructed so that required quantities can be moved efficiently and economically by existing and planned transportation assets and infrastructure of the Defense Transportation System.

*a.* The concept of developing efficiently and economically transportable equipment and combat resources should be an integral part of the acquisition process. Transportability is a critical element of strategic and tactical deployment. When strategic and tactical deployments are requirements, transportability should be a primary system selection and design factor; however, tradeoffs between transportability and combat effectiveness may be appropriate.

*b.* The Engineering for Transportability Program applies specifically to S/E meeting the definition of a transportability problem item. A transportability problem item is an item that meets any of the following conditions:

- (1) The item is wheeled or tracked and is to be towed, hauled, or self-propelled on or off highways.
- (2) The item increases the physical characteristics of the designated transport medium.
- (3) The item requires special handling or specialized loading procedures.
- (4) The item has inadequate ramp clearance for ramp inclines of 15 degrees.
- (5) Exceeds any of the following conditions:
  - (a) Length-20 feet (6.100 m), based on the size of a standard 20-foot International Organization for Standardization (ISO) container.
  - (b) Width-8 feet (2.438 m), based on the size of a standard 20-foot ISO container.
  - (c) Height-8 feet (2.438 m), based on the size of a standard 20-foot ISO container.
  - (d) Weight-10,000 pounds (4535 kg), based on the payload of the 5-ton truck.
  - (e) Weight per linear foot-1,600 pounds (726 kg), based on air transport limits given by MIL–STD–1791.
  - (f) Floor contact pressure-50 psi (344.75 kpa), based on air transport limits given by MIL–STD–1791.

c. Items that do not qualify as transportability problem items, as defined in paragraph b, above, do not need transportability approval. Items that are not on military units' tables of organization and equipment (TOE) and do not have a strategic or Homeland Security deployment requirement are not considered transportability problem items and do not need transportability approval.

d. Transportability engineering assistance may also be available for S/E not meeting the problem item definition.

### **3-6. General**

The CBTDEV, TNGDEV, MATDEV, testers, and evaluators should refer all transportability and deployability matters to the Military Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA), the Army transportability point-of-contact. SDDCTEA is the engineering and analysis proponent ensuring worldwide deployability and force projection of Army equipment. The SDDC is the single DOD manager for military traffic, surface transportation, and common user ocean terminals.

a. The CBTDEV, MATDEV, testers, technical and operational evaluators, and logisticians should maintain a liaison with SDDCTEA and each other to assure consideration and accomplishment of transportability requirements.

b. Correspondence concerning transportability policy, regulations, transportability reports, requests for transportability and deployability assessments, requests for transportability approvals and materiel release concurrence, CONUS and OCONUS highway and rail transportation assistance, and technical and operational matters pertaining to the day-to-day operations of the engineering for transportability program should be forwarded to: Director, SDDCTEA (SDTE-DPE), 720 Thimble Shoals Blvd., Suite 130, Newport News, VA 23606-4537. Address e-mail to: dpemail@tea.army.mil. This includes requests for approval of rail loading drawings for addition to the Association of American Railroads (AAR) "Rules Governing the Loading of Commodities on Open Top Cars". Additional information on these topics and transportation guidance can be obtained from the SDDCTEA Deployability Engineering web site <http://www.tea.army.mil>, or by telephone at DSN 826-4646.

### **3-7. Procedures**

The CBTDEVs, TNGDEVs, and MATDEVs should obtain transportability engineering and design assistance from SDDCTEA for materiel to be transported in Air Force aircraft. SDDCTEA obtains air certification from the U.S. Air Force Air Transportability Test Loading Agency (ATTLA) and can provide virtual analysis and test loadings upon request to help ensure items are capable of transport by all required fixed-wing aircraft.

a. For systems utilizing shelters, CBTDEVs and MATDEVs should obtain engineering and design assistance and certification for use from the Army Shelter Management Office, U.S. Army Natick Soldier Center (AMSRD-NSC-CP-CS), Natick, MA 01760-5018.

b. For systems requiring airdrop and helicopter transport, Natick Soldier Center (NSC) coordinates and provides airdrop and helicopter certifications to SDDCTEA. CBTDEVs, TNGDEVs, and MATDEVs should obtain engineering and design assistance from the U.S. Army Natick Soldier Center (AMSRD-NSC-AD-AD), Natick MA 01760-5017, for certification of materiel to be:

- (1) Airdropped from fixed wing aircraft (MIL-STD-814 and MIL-HDBK-669); or
- (2) Externally transported by DOD rotary winged aircraft (MIL-STD-913); or
- (3) Internally transported by U.S. Army rotary winged aircraft (MIL-STD-1366).

c. The MATDEVs will provide S/E with a transportation and shipping data plate or decal showing tie down and lifting point locations and the location of the center of gravity (MIL-STD-209).

d. The following MIL-STDs and Handbooks should be used for transportability criteria:

- (1) Interface Standard MIL-STD-209 for lifting and tie down criteria.
- (2) See MIL-HDBK-669 and MIL-STD-814 for airdrop criteria.
- (3) See MIL-STD-913 for helicopter external air transport criteria.
- (4) Interface Standard MIL-STD-1366 for general transportability criteria.
- (5) See MIL-STD-1791 for fixed wing air transport criteria.
- (6) American Society for Testing and Materials (ASTM) E1925 for general shelter transportability criteria.

### **3-8. Materiel capabilities documents**

Strategic and tactical mobility capabilities should be established early in the acquisition cycle and monitored throughout. The CBTDEV, in coordination with the MATDEV and SDDCTEA, should include a clear and definitive statement of the required modes of transport in the CDD/CPD. See MIL-STD-1366 for modal information and TEA Pam 70-1 for guidance on establishing transportability requirements. The following is broad guidance presented to assist in development of transportability requirement statements in the specification or purchase description.

*a. General.* State the shipping configuration for each transport mode. In general, the Army deploys its equipment at gross vehicle weight, with semitrailers attached to truck-tractors, and trailers attached to trucks. Any exception should be specifically mentioned in the capabilities document.

*b. Highway.* State level of restriction allowed for highway movement. If the item is to be transported or towed, state the types and models of the planned transport vehicles.

*c. Rail.* State requirement for rail transport in the continental United States (CONUS) and overseas, including rail clearance diagrams that must be met, and consult MIL-STD-810 for details to ensure structural demands of rail transport are considered and met by successfully completing the rail impact test.

*d. Marine.* State the smallest landing craft required in logistics-over-the-shore (LOTS) operations, and, if landing craft are not required, state the specific marine transport requirements (Roll-on/Roll-off, Lift-on/Lift-off, Container ship, Break-bulk, and so forth).

*e. Fixed wing aircraft.* State the types required (C-130, C-17, C-5; and so forth) and whether airdrop is required. If sectionalization is permitted, state the permissible number of people and the assembly and disassembly clock hours. State any mission scenario/range and/or assault landing requirements that could affect system weight. State whether the item's crew must accompany the item during air transport.

*f. Helicopters.* Specify the types of helicopters required (CH-46, CH-47, CH-53, UH-1, UH-60, V-22), type of transport (internal and/or external), and the mission scenario/range.

*g. Intermodal freight containers/flatracks.* List the sizes and the ISO designation of containers in which transport is required. List the size (35 or 40 feet) of flatrack in which transport is required. Normally, non-vehicular S/Es and small vehicles are containerized, and small and medium vehicles transported on flatracks.

*h. Lifting and tiedown provisions.* S/E requiring deployment should be equipped with lifting and tiedown provisions in accordance with MIL-STD-209. MIL-STD-209 is an Interface Standard that may be called out directly in solicitation packages.

### **3-9. Transportability and deployability assessments**

Studies prior to the initiation of item procurement should consider the transportability features and the deployability of the proposed item. Transportation constraints that guide concept design can be established to support detailed consideration of transportability as a critical element. This early involvement further supports decisions to pursue system acquisition since system risks are better quantified. Transportability should be considered as a part of the AoA during the TD acquisition phase. SDDCTEA will provide transportability and deployability assessments (for items designated as transportability problem items) that will determine the impact of the proposed S/Es design characteristics on the unit or force's ability to meet current and future deployment criteria using existing and future deployment assets. SDDCTEA will prepare these assessments for the CBTDEV and/or MATDEV, as required. The CBTDEV and/or the MATDEV must give this input to SDDCTEA no later than 90 days before Milestone B. These assessments will be an integral part of the decision process at Milestone B.

### **3-10. Transportability reports, transportability engineering analyses, and transportability approvals**

Submission of a transportability reports (TR), including 3D computer aided design (CAD) models and/or detail drawings of the general configuration of alternatives provides SDDCTEA with S/E information needed before the initiation of a TEA. (See TEA Pam 70-1, chap 4.)

*a.* The MATDEV should submit transportability data in the TR format (see DI-PACK-80880 or TEA Pam 70-1, chap 6). The MATDEV should submit TRs on all transportability problem items, and systems with stated transportability requirements, at least 90 days prior to Milestone C, to the Director, SDDCTEA (SDTE-DPE).

*b.* The SDDCTEA will conduct a TEA of the item. This analysis will cover all required modes of transport, as well as the item's lifting and tiedown provisions. If the item meets the transportability requirements of its capabilities documents, and has successfully completed all required transportability testing, transportability approval from the Commander, SDDC will be issued. If the item does not meet all its requirements, or has failed to successfully complete testing, approval will not be granted until all deficiencies have been resolved. Transportability approval is required to proceed through Milestone C.

*c.* Transportability reports, SDDCTEA's TEA, and transportability approvals should be included in the integrated logistics support (ILS) portion of the program management documentation.

*d.* While items of equipment are handled differently according to the type of acquisition, early involvement of SDDCTEA is essential to ensure system design incorporates features that support transport. Transportation design constraints can be readily identified that can drive the dimensional and weight limitations for the system. Early identification of these constraints can prevent costly system changes later in the acquisition process.

e. The following identifies the general procedures and timing for submission of transportability reports for the different types of acquisition:

(1) *New acquisitions (developmental, commercial, non-developmental items)*. The SDDCTEA will provide transportability and deployability assessments during the TD acquisition phase, as requested by the CBTDEV and/or the MATDEV. These assessments usually will be part of the AoA. The results of these assessments will be an integral part of the Milestone B decision. During EMD, a SDDCTEA transportability engineer should conduct the transportability and deployability evaluations for source selection evaluation boards (SSEBs). Once the SSEB has made its decision and the successful contractor's design has been finalized, a TR and request for transportability approval, with drawings and/or CAD models, should be submitted by the MATDEV not later than 90 days before the Milestone C decision review. SDDCTEA will then perform a TEA of the proposed item and provide analysis results to the MATDEV. If the item or system meets its transportability requirements and passes transportability testing, SDDCTEA will grant transportability approval.

(2) *Reprocurements*. The purchase description (or specification, technical data package) should be reviewed by SDDCTEA at least 30 days before the data call. The review determines if the document contains current transportability standards. A TR should be submitted by the MATDEV after production qualification (or first article) testing, but before Materiel Release. If the system meets the transportability requirements of the purchase description (or specification, technical data package) and passes transportability testing, SDDCTEA will grant transportability approval and concur with Materiel Release.

(3) *Field modifications*. The MATDEVs or field units should submit a transportability report and request for transportability approval whenever there is:

(a) An increase in an item's or system's shipping dimensions and/or weight due to modifications, and/or

(b) A structural change made to a shelter (in other words, installation of a demarc panel, creating an opening of any type, and so forth).

### **3-11. Force deployability analyses**

Proposed ACAT I and II S/Es should have a deployability assessment conducted by SDDCTEA during the TD acquisition phase. This assessment analyzes the effect that the new system and its support structure have on the deployability of the gaining unit. SDDCTEA and the CBTDEVs determine the scope of the deployability analysis on a system-by-system basis. If deemed necessary by SDDCTEA and the CBTDEV, force deployability assessments may be conducted for ACAT III systems. This effort coincides with the deployability analysis required for the system AoA. The force deployability analysis is furnished to HQ TRADOC and the TRADOC Analysis Center before the Milestone B decision review, and will be a consideration at the decision review.

### **3-12. Airdrop, external helicopter air transport, and shelter certification**

Design assistance available from the U.S. Army Natick Soldier Center includes the following:

a. Analysis of proposed designs to determine helicopter air transport and airdrop acceptability. This assistance is obtained as early as possible in the design stages of development.

b. Engineer designed trial rigging procedures for helicopter air transport and airdrop of the final design of developmental materiel.

c. Laboratory facilities for developmental testing of proposed materiel in controlled helicopter air transport and airdrop environment including lifting provision and tie down provision restraint test facilities. In addition, Simulated Airdrop Impact Testing (also known as static drop, roller testing, and extraction, suspension, and tie down provision testing) would be included for materiel to be delivered by airdrop.

d. Recommendations for component and systems designs and energy dissipation configurations to provide optimum airdrop capability. Consider auxiliary equipment such as platform, parachute, webbing strap, and energy dissipation material (MIL-HDBK-669) when equipment is developed for airdrop. The unit (rigged) load will meet the limitations specified in MIL-STD-1791. Tiedown, suspension, and extraction provisions will meet the requirements of MIL-STD-814. Equipment designed for airdrop also must be designed to be air transportable.

e. S/Es that are transportability problem items and have a requirement to be transported internally (CH-47, UH-60, UH-1) or externally by helicopters (CH-46, CH-47, CH-53, UH-1, UH-60, MV-22) require SDDCTEA transportability approval. MATDEVs should submit test data and structural analyses to SDDCTEA and NSC that prove lifting and tiedown provisions meet MIL-STD-209. Test loads and flight tests may be required for transportability approval.

f. Recommend, review and/or assist in the implementation of any modifications made to the shelter. If required, NSC will model the changes to ensure that the structural integrity of the shelter is maintained for transportability. If the S/E developer has a model of the system being integrated into the shelter, NSC will review the model to ensure adequate validation has been performed.

*g.* Review the level of planned testing and make recommendations, as necessary. Testing will validate that the modifications/integration do not adversely impact the transportability performance of the shelter as specified in the appropriate shelter specification. NSC will assist the S/E developer with coordinating any additional testing and provide oversight of the testing to ensure shelter compliance.

*h.* Assist the S/E developer in submitting a waiver request to the Joint Committee On Tactical Shelters (JOCOTAS), if a non-standard shelter is being used.

*i.* The S/Es that are transportability problem items and have a requirement to be transported internally by aircraft (C-130, C-17, C-5) require SDDCTEA transportability approval. MATDEVs should submit test data and structural analyses to SDDCTEA, NSC, and the ATTLA that prove the shelter will survive internal air transport.

### **3-13. Transportability modeling and simulation**

Modeling and simulation is used to support transportability analyses of S/Es prior to or in place of transportability testing. The MATDEVs should submit CAD models or detailed drawings for both physical and structural evaluation to SDDCTEA. Types of analyses include item clearance with transportation constraints, lifting and tiedown provision location and strength, and transport shock and vibration. Results of these evaluations will be used in determining the testing requirements for the item.

### **3-14. Transportability testing**

The requirement for transportability testing should be established early in item acquisition, and included in the program test plan. It is possible that test requirements may change during the acquisition process as the item configuration matures. CAD analyses may be deemed suitable to replace some testing. This is determined on an item-by-item basis. The MATDEV is responsible for scheduling testing so it is completed to support transportability approval.

*a.* The MATDEVs and CBTDEVs should not establish new test facilities to conduct airdrop tests on materiel. Such test facilities are established and maintained by the U. S. Army Test and Evaluation Command (USATEC). This does not prevent the use of development agencies' static drop facilities that are already in existence and maintained for other developmental purposes or the use of commercial test sites.

*b.* The requirement for an air transportability test loading is established during ATTLA review of an item for air transport certification. A test loading can be required when an item infringes on the safety clearances normally maintained between an item and the aircraft structure, or when special procedures may be required to accomplish loading. When an air transportability test loading is required, the MATDEV should coordinate with ATTLA to establish test requirements and begin the process of aircraft scheduling.

*c.* Helicopter certification is required for all items with a helicopter transport requirement. The MATDEV should coordinate with NSC to begin the process of analysis and flight tests required for certification.

*d.* The MATDEVs and CBTDEVs should not establish new test facilities to conduct shelter transportability testing. The USATEC establishes and maintains such test facilities. This does not prevent the use of commercial test sites.

*e.* Transportability testing should be successfully completed prior to SDDCTEA granting transportability approval. All research, development, test, and evaluation (RDTE) items, non-developmental items, and materiel changes should be tested.

*f.* Identical items manufactured by different contractors, or identical items manufactured by the same contractor under different contracts (different production runs), should be tested individually.

*g.* See AR 73-1 for detailed test and evaluation guidance.

### **3-15. Transportability guidance documentation**

The SDDCTEA establishes restraint and lifting procedures for required transport modes for inclusion with the item transportability approval. The MATDEV should include these procedures in the ILS portion of the program management documentation.

### **3-16. Transportability guidance pamphlets/references**

The SDDCTEA publishes transportability guidance pamphlets for use within the transportation community. Pamphlets for highway and rail tiedown, marine lifting and tiedown, lifting and tiedown of helicopters, containerization, and preparation for air transport are maintained, with updates available on the Web site <http://www.tea.army.mil>, and published every 2 to 3 years to incorporate new acquisitions and modifications to existing systems.

### **3–17. Transportability characteristics data**

The MATDEVs should submit transportability characteristic data to Director, SDDCTEA (SDTE–SI), within 30 days of an item being assigned to a TOE or being assigned a standard line item number. For items where SDDCTEA has conducted a transportability engineering analysis and granted transportability approval, the developer should either certify that the data submitted during EMD are valid for the production model or submit corrected data.

## **Section IV**

### **Support Strategy**

### **3–18. Integrated logistics support**

Integrated logistics support (ILS) management consists of the technical and management activities conducted to ensure supportability and sustainment implications are considered early in the development process, and executed throughout the acquisition process to minimize total ownership cost (TOC) and to ensure that the user is provided the resources to sustain the system in the field. There are 10 elements included under ILS as follows: Maintenance Planning; Manpower and Personnel; Supply Support, Support Equipment; Training and Training Support; Technical Data; Computer Resources Support; Facilities; Packaging, Handling, Storage, and Transportation; and Design Interface.

*a.* The earlier in a system's life cycle that supportability and sustainment implications are addressed, the larger the potential reduction in TOC and logistics footprint. Therefore, the CBTDEV must ensure that acquisition logistics management activities are begun in the Pre-Systems Acquisition activities, as part of the MSA and TD acquisition phases.

*b.* The CBTDEV designates an ILS point of contact (POC) or assigns ILS responsibility to a staff/action officer lead to oversee the acquisition logistics management program as outlined in AR 700–127.

*c.* At program initiation, the CBTDEVs ILS POC assists the PM, also referred to as the total life cycle system manager (TLCSM), in transitioning the Integrated Logistics Support program to the PM/TLCSM. The PM designates an ILS Manager to oversee the ILS management program.

*d.* The PM establishes a WIPT in accordance with AR 700–127, titled the supportability integrated product team (SIPT). The SIPT is a multi-functional team that will prepare the supportability strategy (SS) to plan, program, and execute the ILS management program and ensure demonstration of logistics requirements. The PMs ILS Manager chairs the SIPT. When a performance based logistics Product Support Strategy is being implemented, the product support integrator (PSI) will co-chair the SIPT. The CBTDEVs appointed ILS POC participates in the SIPT as the “users” representative.

*e.* The ILS Manager and the SIPT members use the SS as a record of the planning, programming, and execution of the acquisition logistics program, as well as documenting logistics issues and lessons learned from the program.

*f.* Supportability is to be given equal consideration as cost, schedule and performance in all program decision-making. Therefore, ILS management must be an integral component of the systems engineering process and ILS should be involved in influencing the design for supportability early-on in the program as the ability to affect life cycle costs diminishes as the design is finalized. Supportability modeling and analyses are the tools by which design influence is accomplished and ILS management objectives will be developed and achieved through the systems engineering process.

### **3–19. Supportability strategy**

The SS, which is a Government-prepared document, is prepared in accordance with AR 700–127. The SS evolves over time and includes a description of the logistics support alternatives, the type(s) of analysis that will be conducted to assess those alternatives, the results of the analysis, the decisions made, the implementation actions required to put the selected alternative into place, and the actions taken to execute the selected logistics support concept. The SS details how the ILS will be used to influence the design in the early stages, and how the support will be developed to support the design. The strategy is updated prior to each milestone or major event (for example, production decision, fielding, and so forth) and is required by AR 700–127.

*a.* The SS is summarized in the acquisition strategy, or the complete SS may be included as an appendix to the acquisition strategy.

*b.* Information in the SS summary in the acquisition strategy includes but is not limited to—

(1) An overview of the performance based logistics (PBL) Product Support Strategy or other logistics support concept if PBL is proven to not be operationally or economically feasible. The overview should include a description of the logistics support functions to be performed and which functions will be performed organically, under contract, or through organic and contractor partnership arrangements. This should include the type(s) of contractual instruments to be used.

(2) A description of who the principal parties are in identifying and preparing logistics related acquisition documents, to include a description of the roles and responsibilities of each. This could be a summary of the roles and responsibilities of the SIPT membership.



(3) A description of the logistics related information to be obtained, or already obtained, from market investigation and market research. This includes such information as operator or maintenance literature, commercial brochures, a listing of global authorized repair facilities, reliability, maintainability or supportability data, parts lists, and so forth.

(4) A description of how Supportability Analyses (in accordance with GEIA-STD-0007 and MIL-HDBK-502 and associated Data Item Descriptions included therein) will be applied to the systems engineering process and contracts. This should include a listing of the specific analysis to be incorporated into contracts or a listing of the data needed for the Government to perform the desired analysis. It should also show how this analysis is to be used in the engineering process.

(5) An overview of the HSI strategy. The overview should include an identification of responsibilities, a description of the technical and management approach for meeting HSI requirements, and a summary of the major elements of the associated training system. See paragraph 3-23 for additional information.

(6) The HSI and environmental requirements in developing logistic support strategies, concepts, and plans. The information will assist the CBTDEV in developing the system HSI management plan and integrating the ILS aspects of the HSI management plan into the SS.

(7) The transition plans/milestones from interim contractor support (ICS)-to-organic support, if applicable.

(8) A description of how warfighter performance based agreements (PBAs) will be developed and applied to contracts under a PBL approach.

(9) A description of how rights to technical data or long-term access to technical data is to be obtained to support a competitive base for acquiring and maintaining an optimized logistics support system. Technical data is required to support logistics efforts regardless of whether the support is organic or provided by a contractor.

(10) The PMs will apply the open systems approach as an integrated business and technical strategy. The PMs document their approach for using open systems and include a summary of their approach in the acquisition strategy. This includes a listing of the commercial standards or specifications to be used in acquiring logistics products and services and a listing of the waivers to be obtained for use of other standards and specifications.

(11) A description of how automated identification technology (AIT) will be applied to the systems acquisition and logistic support agreements. The Army will use DOD standard AIT technologies, equipment, applications, and formats to the maximum extent practicable to enable logistics process reengineering, decrease cost, and ensure interoperability with the other Military Services and agencies. All Army supply and transportation nodes will be enabled to produce and read standard two-dimensional bar code labels. For detailed guidance on AIT see: Defense Logistics Agency Logistics Automatic Identification Technology Concept of Operations, November 1997 and the Army Electronic Business/Electronic Commerce Implementation Plan, October 1999.

(12) A description of how the acquisition approach and logistic support concept will enable a reduction in TOCs. Influencing design to achieve high reliability is one of the most effective measures to achieve TOC reductions. Other measures would be inclusion of maintenance free or low maintenance components. The application of warranties, guarantees, contract incentives, embedded diagnostics/prognostics, and embedded training devices and training aids, and so forth, are examples of potential TOC reduction actions. Additional initiatives that should be considered for reduction in TOC are component breakout, standardization, and interchangeability of components.

(13) The National Maintenance Program (NMP) and Single Stock Fund are two Army logistics initiatives that should be incorporated into the logistics support acquisition approaches. In addition, the NMP overhaul standards for secondary items are documented in either a depot maintenance work requirement (DMWR) for depot level repairables or a national maintenance work requirement (NMWR) for field level repairables. The acquisition strategy should indicate how these logistics initiatives are to be incorporated into the specified acquisition approach.

### **3-20. Performance based logistics**

*a.* Performance based logistics (PBL) is DODs preferred approach for implementing product support. Army PEOs/PMs as the TLCSMs will make maximum use of the PBL strategy. Where it is operationally and economically feasible, the PBL decision will be based upon a business case analysis conducted by the PM. The PBL is a strategy for weapon system life cycle support that brings higher levels of system readiness through efficient management and direct accountability. It describes performance goals for a weapon system's readiness, and encourages the creation of incentives for attaining the goals through clear lines of authority and responsibility.

*b.* For additional information/guidance, see the Performance Based Logistics: A Program Manager's Product Support Guide and the U.S. Army Implementation Guide Performance Based Logistics (PBL) that can be found on the AT&L Knowledge Sharing Systems (AKSS) Web site (<http://akss.dau.mil/guidebookalphabeticlinks.do>).

*c.* Additional Army guidance on PBL can be found in AR 700-127.

### **3–21. Total systems approach**

The PMs manage their acquisition programs to optimize total system performance and reduce TOC. The total system includes, but is not limited to—

- a.* The end item.
- b.* The associated support items of equipment (ASIOE).
- c.* The personnel identified to operate and maintain the end item and ASIOE.
- d.* The training, training devices, and training support identified in capabilities documents and STRAP.
- e.* Technical data, to include but not limited to, operations and maintenance manuals (including both electronic technical manuals (ETMs) and interactive ETMs (IETMs)), standards, specifications, field manuals, engineering drawings, and software documentation.
- f.* Transportation equipment.
- g.* C4I equipment.
- h.* Logistics processes and procedures.
- i.* Physical security.
- j.* Storage, maintenance and training facilities.
- k.* Industrial Base capability.
- l.* Support equipment and TMDE.

### **3–22. Source of repair**

*a.* It is DOD policy to maintain adequate organic core depot maintenance capabilities to provide effective and timely response to surge demands, ensure competitive capabilities, and sustain institutional expertise. Statutory guidance included in 10 USC 2460, 2464, 2466, 2469, and 2474 should be reviewed prior to Milestone B and the procedures included therein adhered to when source of repair (SOR) decisions are considered.

*b.* According to DODD 4151.18 and AR 700–127, MATDEVs should use a logical decision-tree process to determine source of depot-level repair (see AR 750–1). Core capabilities and related workloads must be reviewed every two years. Core capabilities to repair new weapon systems will be established within four years of achieving IOC.

*c.* The decision to use contractor support should be based upon analyses of tradeoffs of alternative support concepts. The analyses should be based upon supportability analyses performed up-front in the acquisition process. The analyses must show that contractor support is the optimum among feasible alternatives, will provide the required support in both peacetime and wartime scenarios, is the most cost-effective method, and clearly in the Government’s best interest.

*d.* In addition, MATDEVs should include in their SOR analysis the capabilities/capacities of the below-depot sources of repair considered qualified national providers in support of the NMP. For additional information concerning qualified national providers and the NMP, refer to AR 750–1.

## **Section V**

### **Manpower and Personnel Integration/Human Systems Integration**

#### **3–23. Manpower and personnel integration considerations**

The HSI is the Army’s implementation of DODs HSI Program in accordance with DODI 5000.02. The HSI section of the AS addresses the MATDEVs strategy for pursuing a HSI strategy, as specified in AR 602–2. This strategy will implement and support a HSI program (see DODI 5000.02, enclosure 8, and AR 602–2) that will optimize total system performance; minimize total ownership costs; and ensure the system is built to accommodate the characteristics of the user population that will operate, maintain, train, and support the system. The MATDEV addresses manpower, personnel capabilities, training, system safety, health hazards, human factors engineering, and Soldier survivability considerations in an integrated manner throughout the acquisition process. The HSI support strategy also identifies responsibilities, describes the technical and management approach for meeting HSI requirements, and summarizes major elements of the associated training system. The document that describes how the MATDEV will identify, track, and manage the HSI risks and mitigation strategies identified is the HSI management plan.

#### **3–24. Manpower considerations**

The HSI support strategy documents the approach being used to provide the most efficient and cost effective mix of DOD manpower and contract support and identifies any cost or schedule issues (for example, uncompleted studies) that could impact the MATDEVs ability to execute the program. See DODI 5000.02, enclosure 8, paragraph 2*d* for additional information. Programs of all ACAT levels should contact the Army Research Laboratory (ARL)/HRED at Army Research

Laboratory, AMSRD–ARL–HR, Aberdeen Proving Ground, MD 21005 (phone (410) 278–5817/5916/5802) for assistance.

### **3–25. Personnel capabilities**

The MATDEV considers attributes of the target population and, through system engineering design efforts, attempts to stay within those skill boundaries. When skill requirements exceed those in the user population, the MATDEV will identify readiness, personnel tempo (PERSTEMPO), and funding issues that impact program execution. See DODI 5000.02, enclosure 8, paragraph 2*b* for additional information. Programs of all ACAT levels should contact the Army Research Laboratory (ARL)/HRED at Army Research Laboratory, AMSRD–ARL–HR, Aberdeen Proving Ground, MD 21005 (phone (410) 278–5817/5916/5802) for assistance.

### **3–26. Training considerations**

The MATDEV must address major elements of the training system described in DODD 1322.18 in the HSI support strategy. Emphasis is placed on options that enhance user’s capabilities, improves readiness, maintain skill proficiencies, and reduces individual and collective training costs. See DODI 5000.02, enclosure 8, paragraph 2*e* for additional information. Programs of all ACAT levels should contact the Army Research Laboratory (ARL)/HRED at Army Research Laboratory, AMSRD–ARL–HR, Aberdeen Proving Ground, MD 21005 (phone (410) 278–5817/5916/5802) for assistance.

### **3–27. Soldier survivability**

For systems with missions that might be exposed to combat threats, the MATDEV will address Soldier survivability issues including protection against fratricide, detection, and instantaneous, cumulative, and residual nuclear, biological, and chemical effects; the integrity of the crew compartment; and provisions for rapid egress when the system is severely damaged or destroyed. See DODI 5000.02, enclosure 8, paragraph 2*g* for additional information. For ACAT I and II programs, contact the Army Research Laboratory (ARL)/SLAD at Army Research Laboratory, AMSRD–ARL–SL, Aberdeen Proving Ground, MD 21005. Phone (410) 278–6323.

### **3–28. Human factors engineering**

The MATDEV summarizes in the AS steps being taken (for example, contract deliverables or government/contractor IPT teams) to ensure the proper employment of human factors engineering (HFE)/cognitive engineering during systems engineering (see DODI 5000.02, enclosure 8, para 2*a*) to provide for effective human-machine interfaces, meet HSI requirements, and (as appropriate) support a family of systems acquisition approach. Early emphasis in the acquisition process on HFE precludes the increased cost and schedule of re-design, re-tooling, and re-testing required to achieve desired performance through the correction of HSI (HSI) issues. Programs of all ACAT levels should contact the Army Research Laboratory (ARL)/HRED at Army Research Laboratory, AMSRD–ARL–HR, Aberdeen Proving Ground, MD 21005 (phone (410) 278–5817/5916/5802) for assistance.

### **3–29. System safety and health hazards**

The MATDEV summarizes the PESHE in the AS, including risks, a strategy for integrating safety and health hazard considerations into the systems engineering process, identification of safety and health hazards responsibilities, and a method for tracking progress. Early emphasis on system safety and health-related risks minimizes increases in cost and schedule associated with redesign, retooling, and retesting to achieve desired system performance through the correction of safety and health-related concerns. For risk decisions on mishap and health related risks identified by the program, the AAE is the decision authority for high risks, PEO-level for medium risks, and the PM for low risks as defined in AR 70–1. See DODI 5000.02, enclosure 8, paragraph 2*f*, for additional information. System Safety requirements and Health Hazard Assessment requirements are outlined in AR 385–16 and AR 40–10. These regulations dictate the process for addressing System Safety and Health Hazard issues and will be the primary guidance for administering these programs. Programs of all ACAT levels should contact the U.S. Army Combat Readiness Center (Safety), Fort Rucker, AL 36362 (phone (334) 255–2845) and U.S. Army Center for Health Promotion and Preventive Medicine, U.S. Army HHA Program, (Health Hazards) (MCHB–TS–OHH), Aberdeen Proving Ground, MD 21010–5403 (phone (410) 436–2925) for assistance.

## **Section VI**

### **Environment, Safety, and Occupational Health**

### 3–30. Environment, safety and occupational health requirements

The DODI 5000.02, ESOH requirements apply to all ACAT programs and there are no waiver provisions. ESOH requirements apply to all designated acquisition programs including developmental items, commercial items, nondevelopmental items (NDI), increments, and product improvements. ESOH considerations are essential to ensuring acquisition programs, suppliers and field activities can comply with legal statutes and provide safe and supportable materiel to the Soldier. MATDEVs establish an ESOH risk management process using the MIL–STD–882E; integrating ESOH considerations into the program’s systems engineering process. The MATDEV establishes ESOH programs that address ESOH compliance, NEPA compliance, system and explosive safety, health hazards, hazardous materials management, pollution prevention, and demilitarization and disposal. The MATDEV should integrate ESOH information to support the risk management process through system engineering and supportability IPTs. More detailed ESOH guidance and additional information can be found on the ASA (ALT) Digital Library at <https://webportal.saalt.army.mil/search> keyword “ESOH” and the U.S. Army Environmental Center Web site, <http://aec.army.mil/usaec/>.

#### *a. Programmatic environment, safety and occupational health evaluation.*

(1) The MATDEV is required to develop a programmatic environment, safety and occupational health evaluation (PESHE). The PESHE is developed early in the program life cycle (before Milestone B) to plan the ESOH risk management process in accordance with the MIL–STD–882E. The MATDEV uses the PESHE as a internal program management tool and record of the planning, programming, and execution of the ESOH risk management process. The PESHE is approved by the MATDEV and used to demonstrate ESOH program activities during program reviews.

#### (2) The PESHE should include—

(a) Strategy for integrating ESOH considerations into the systems engineering process.

(b) Identification of ESOH responsibilities.

(c) Approach to identify ESOH risks, to prevent the risks, and to implement controls for managing those ESOH risks where they cannot be avoided.

(d) Identification and status of ESOH risks including acceptance authority for residual ESOH risks. Risk acceptance levels are described in AR 70–1 as the AAE for high risks, the PEO-level for medium risks, and the PM for low risks.

(e) Method for tracking progress in the management and mitigation of ESOH risks and for measuring the effectiveness of ESOH risk controls.

(f) Schedule for completing NEPA/Executive Order (E.O.) 12114 documentation including the approval authority of the documents. Approval of specific program NEPA/E.O. 12114 documentation is by signature of the acceptance authority for residual risks based on risk level. Signature of the AAE is only required for a high ESOH risk that would normally be documented in an Environmental Impact Statement. MATDEVs should coordinate programmatic system NEPA data and supporting documentation with gaining installations so that the installations can conduct additional NEPA analyses as required to support test and evaluation, training, and fielding management.

(g) Identification of hazardous materials (HASMAT) used in the system configuration and associated with system operation and sustainment.

(h) The plan for system demilitarization/disposal including hazardous materials contained in the system configuration or associated with system sustainment.

(3) Update PESHEs for each milestone review and the FRP Decision Review. PESHEs are living documents that should be updated as new ESOH risks are identified, risks are closed out, new ESOH controls or mitigations are proposed, and as the effectiveness of controls or mitigations are evaluated. Additional information about PESHEs can be found on the ASA (ALT) digital library at <http://library.saalt.army.mil> and the U.S. Army Environmental Center Web site, <http://aec.army.mil/usaec/>. The CBTDEVs and MATDEVs should coordinate with the ASA (ALT) Environmental Support Office (ESO) for guidance and staffing. The ESO will coordinate with the MATDEV and the DASA (ESOH) prior to milestone decision reviews.

(4) The Support Strategy section of the AS contains a summary of the PESHE document, including ESOH risks, a strategy for integrating ESOH considerations into the systems engineering process, identification of ESOH responsibilities, a completion schedule for NEPA documentation and E.O. 12114 compliance, and a method for tracking the progress of ESOH issues.

#### *b. Environment, safety, and occupational health compliance.*

(1) The program vendors, supporting organizations, the industrial base, the supplier base, and testing and field installations must comply with numerous environmental laws, regulations, and executive orders in carrying out their activities. Compliance with ESOH regulations is critical to maintaining program schedules, controlling program costs, assuring successful materiel fielding and enhancing readiness through unencumbered training. The MATDEV is not directly responsible for compliance with ESOH laws except NEPA. However, MATDEVs make decisions that directly affect suppliers, the industrial base and installations’ ability to maintain compliance. The potential effects of noncompliance can be notices of violation, fines, and work stoppage. Obviously work stoppage can have a detrimental effect on the program schedule. Fines

can have an impact on program costs if directly associated with program activities; however, the greatest impact to cost and schedule would occur during remediation and mitigation actions to return the facility or installation to environmental compliance. Moreover, violations could result in limitations on training, stoppage of training, and/or loss of training ranges necessary to support the Army mission. Work disruption, training limitations, environmental remediation, and installation of expensive pollution control devices can be extremely costly to the program and to Army readiness.

(2) The MATDEV will comply with applicable ESOH regulations. To adequately assess risk associated with ESOH compliance, the MATDEV should conduct an environmental compliance review. The results of the review needs documenting in the PESHE and are considered an evaluation criterion for milestone review. The compliance review consists of an investigation of environmental laws, at the international, national, state, and local level, believed to be applicable to the program's activities. From the investigation, the MATDEV can assess the potential impact of the laws at various schedule points in the program and within various disciplines of the program. This assessment allows the MATDEV to identify potential risks early enough to take a mitigating or work around action. The environmental compliance review should be shared with program partners to focus multi-disciplinary resources on any issue that may arise. Significant resources are available from ESO, the Heavy Metals Office, and U.S. Army Environmental Center to evaluate courses of action needed to assure compliance through pollution control or pollution prevention actions. As a first step in the risk management process, MATDEVs are strongly encouraged to form an ESOH IPT to work with systems engineering, T&E, ILS and other program IPTs to integrate environmental considerations into the system engineering process.

*c. National Environmental Policy Act compliance.*

(1) The NEPA compliance by the MATDEV ensures environmental impacts from the system on the human and natural environment are fully considered in conjunction with technological, economic, and mission related components of the decision making process. The Army's NEPA guidelines and responsibilities are extensively documented in 32 CFR Part 651, dated 29 March 2002. MATDEVs should coordinate with the ESO for NEPA guidance and for review and feedback on NEPA documentation and compliance. MATDEVs should submit requests for public notification of the availability of NEPA documentation to the Defense Environmental Network Information Exchange (DENIX). The DENIX Web site is <http://www.denix.osd.mil>. ESO will review and coordinate approval of request for public notification with the ODASA (ESOH).

(2) The ESOH compliance requirements applicable to weapon system operation, support, and disposal include hazardous materials and toxic chemical management, hazardous waste management, environmental permitting, noise emissions, air emissions, wastewater discharges, and other impacts to the human environment. The ESOH compliance review and NEPA analysis provide a resource of information needed by the MATDEV to make key system configuration decisions and to allow production, maintenance, testing, training, and fielding installations to manage and budget for the impending environmental impacts of receiving a new system. A key element to avoid schedule impacts is early communication of ESOH information with testing, training, and fielding locations. A suggested listing of typical system environmental characteristics important to testing, training, and fielding locations is available through the ASA (ALT) Digital Library, Materiel Fielding Data (search string "ESOH"). The MATDEVs are encouraged to review the listing and identify system configuration data pertinent to the system's physical characteristics and resulting environmental impacts. The MATDEVs should periodically update answers to these questions as system information matures. The answers to these questions will assist testing and fielding locations to develop supplemental NEPA documentation supporting testing, training, and fielding decisions as well as help gaining installations determine the ESOH management processes needed to support the fielded system.

(3) The MATDEVs should coordinate with installations where testing, training, and fielding activities are anticipated through the Installation Management Agency (IMA) and the testing activities. The IMA and affected installations may request review of program NEPA documentation and environmental characteristics pertinent to operation, support, and disposal of the system and system components. MATDEVs should request the IMA and installations provide timely feedback so that, where possible, impacts to installations are addressed during system development, test planning, or operation and support planning activities. Identifying and resolving environmental issues may result in cost avoidances to the installation. MATDEVs are strongly encouraged to include the IMA as an active member of program IPTs and WIPTs as appropriate.

*d. Hazardous materials management and pollution prevention.*

(1) The MATDEVs primarily focus on system configuration in development and subsequent sustainability to provide full operational capability. System configuration and sustainability is the area where ESOH impacts resulting from weapon system operation and support can be most effectively, efficiently, and economically reduced. Use of heavy metals, toxic chemicals, and other hazardous materials to produce, operate, or maintain systems are system configuration decisions. These decisions directly influence the logistic burden of CONUS and forward deployments, directly affect safety and occupational health of Soldiers and workers, directly influence the management burden of installations and maintenance

depots, directly influence the initial cost of the system, and directly influence the total ownership cost (including demilitarization and disposal). As the life cycle manager, the MATDEVs should use these decision points to minimize the system life cycle cost and burden of the system.

(2) Hazardous materials management programs are primarily contracted to the lead system supplier and tiered to sub-tier vendors. National Aerospace Standard (NAS) 411 provides a framework for hazardous materials management. MATDEVs are encouraged to use NAS 411 and tailor its requirements to those of the program. Using this approach, MATDEVs will have the information needed to assess where and when pollution prevention approaches to reduce environmental impacts can be most efficiently employed.

*e. Examples of contract language to address ESOH requirements.* Figure 3-1 shows examples of contract language that the MATDEV and his contracting and technical staff should consider for use in special contract requirements or performance work statements to address ESOH requirements. The MATDEV is encouraged to work with his staff to use and, if needed, tailor these statements for the program. This information is in addition to standard contract clauses and the contracting officer should review them prior to use.

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## ESOH Contract Language Examples

### ***For System safety/health:***

The contractor shall implement a System Safety/Health program that is integrated with the system engineering process used to develop, mature and support the system. The contractor shall use MIL-STD-882D, as tailored by AR 385-16 and AR 40-10, in determining whether System Safety/Health engineering objectives are met. The contractor shall adhere to software safety process requirements.

### ***For System safety/health program plan:***

The contractor shall develop a System Safety Management Plan/Health Program Plan defining safety/health activities, relationships to other supplier organizations and the overall Program.

### ***For Safety/health analyses:***

The contractor shall identify safety and health hazards associated with the system by conducting safety/health analyses and hazard evaluations. The contractor shall include both operational and maintenance aspects. The analyses shall include potential health hazards such as heat and cold stress, noise, inadequate ventilation, exhaust, vibration, NBC protection, toxic substances, and ionizing and non-ionizing radiation. The contractor shall provide sufficient detail to clearly define the specific problem, issues involved and reasoning behind the analysis. The contractor assessment shall include an analysis of data, observations, findings, reports and other sources of information.

### ***For Elimination/Control of Hazards:***

The contractor shall eliminate or reduce hazards to acceptable levels by elimination or control through appropriate design or materiel selection. The contractor shall use the following, in descending order of precedence to eliminate or control potential safety/health hazards:

Design for Minimum Risk - Unacceptable hazards and environmental conditions shall be eliminated or their associated risks mitigated by design when feasible.

Incorporate Safety devices – Hazards or unacceptable environmental conditions that cannot be eliminated or controlled through design selection shall be controlled to an acceptable level of risk through the use of fixed, automatic or other protective safety design features or devices. Provisions shall be made for periodic functional checks of safety devices.

Provide Warning Devices - Devices will be installed to detect hazardous or unacceptable environmental conditions that cannot be otherwise eliminated or controlled. Adequate warnings shall be provided to alert personnel of the hazard or unacceptable condition and afford sufficient time for personnel response.

Develop Procedures and Training - When all other reasonable possibilities of hazard resolution or environmental protection have been exhausted, procedural controls and specialized training may be used to counter hazardous or unacceptable environmental conditions and actions. Warning and inspection provisions and procedures will be used to detect and correct failures, malfunctions, and errors before the hazard or environmental damage manifests itself. In no case will a single warning or caution or other form of written advisory be the only form of risk reduction.

### ***For Safety Assessment Report (SAR):***

The contractor shall prepare and submit to the Government an initial Safety Assessment Report (SAR) for the system, including data relative to the Health Hazard Assessment requirements of AR 40-10. The contractor shall submit the SAR at PDR. The contractor shall provide SAR developmental status and

Figure 3–1. ESOH contract language examples

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subsequent updates upon request at mutually agreed on selected Program Management Reviews and Technical Interchange meetings where concerns require tracking.

The SAR shall identify all hazards associated with the system hardware and software design, the specific design features employed to eliminate or control the hazard; and shall provide verification of compliance to safety requirements. The SAR and its associated Hazard Reports will provide the basis for the development of Safety and Health releases required prior to test or operation of the supplied item(s).

The SAR shall include an analysis of all potential health hazards as described in AR 40-10. Sufficient detail shall be provided to clearly define the specific problem, issues involved and reasoning behind the analysis. The assessment must include an analysis of data, observations, findings, reports and other sources of information. If the equipment produces non-ionizing radiation, calculations for the hazard range shall be provided.

***For National Environmental Policy Act (NEPA):***

The contractor shall provide the data or any other type of information associated with the system (e.g., test descriptions and sites, system physical and performance characteristics, etc.) needed for PM to conduct system-specific NEPA analyses and the Government to do site-specific environmental assessments/other NEPA analyses. (See Materiel Fielding Data on the ASAALT digital library, Search String "ESOH".)

***For Pollution prevention:***

The contractor shall provide a Pollution Prevention Plan to minimize program environmental and cost impacts and ensure that all pollution that cannot be prevented will be recycled or disposed of in an environmentally safe manner. When hazardous materials are identified for use in the design, the contractor shall conduct a trade-off analysis required as part of their Hazardous Materials Management

Program to determine the availability of substitute materials and the feasibility of using them based on cost, schedule, performance requirements, and associated risk impacts to the system's development. The contractor shall report the status of these analyses at program review meetings.

The contractor shall comply with all applicable Federal, state and local ESOH laws, regulations, and policies applicable to the activities defined in this Statement of Work (SOW). Upon request, the contractor shall make available the applicable environmental permits and documentation. The contractor shall be responsible for the management, cleanup, protection, and disposal of emissions, effluents, wastes, and hazardous materials used in, generated by, or associated with the contractor's actions required by this SOW. The contractor shall report the current status and impacts to program cost, schedule and performance resulting from environmental protection and pollution prevention at major management reviews upon request.

The contractor shall certify that they are in compliance with the reporting requirements of the Emergency Planning and Community Right-to-know Act (EPCRA) of 1986 and the Pollution Prevention Act (PPA) of 1990. The contractor shall not use radioactive materials without the written approval of the Government. If any items furnished under this contract will contain thorium, or other source material (see Title 10, Code of Federal Regulations, Part 40) in excess of 0.05 percent by weight or any other intentionally added radioactive material, the contractor shall provide a list to the Government for approval. If a Nuclear Regulatory Commission (NRC) license is required, the contractor shall submit request for license within 30 days of contract award.

***For Hazardous material management:***

The contractor shall plan and implement a Hazardous Materials Management Program (HMMP) using National Aerospace Standard 411, "Hazardous Materials Management Program", as a guidance document. The contractor may use their existing program(s) using NAS 411 as a guide. The contractor

**Figure 3-1. ESOH contract language examples—continued**

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shall define and document their approach in the HMMP Plan. The purpose of the program is to eliminate or reduce (where elimination is not feasible) hazardous/toxic materials with emphasis on the Environmental Protection Agency (EPA) list of 17 toxic chemicals as well as the DoD "Top 10 Toxic Release Inventory (TRI) List of Hazardous Chemicals". In addition to these two lists, the term "hazardous/toxic material" includes all materials or ingredients of materials identified by or included in:

Paragraph 3.2 of FED-STD-313D

"Book of Lists for Regulated Hazardous Substances" (an annual publication of Government Institutes, Inc., 4 Research Place, Suite 200, Rockville, MD 20850)

Department of Defense Directive (DoDD) 6070.9, "Chlorofluorocarbons (CFCs) and Halons"

"Clean Air Act of 1990" and Amendments (CAAA), Section 112 [42 U.S.C 4712] (Hazardous Air Pollutant List)

29 CFR 1910.1200

Toxic chemicals in the Pollution Prevention Act of 1990 (Enacted by Public Law 101-508), i.e., which are on the list described in section 313(c) of the Superfund Amendments and Reauthorization Act of 1986

Applicable Federal, State and local ESOH laws and regulations

The contractor shall prepare an HMMP Report, using contractor format, which identifies all hazardous materials required for the system production; provides a listing of prioritized hazardous materials for minimization/elimination per the criteria established in the HMMP Plan, and identifies those hazardous materials/processes for which non-hazardous substitute materials/technologies may be available for implementation.

The contractor shall report the status of its HMMP each major Program Review, Preliminary Design Review (PDR), Critical Design Review (CDR) and applicable Technical Interchange Meetings (TIMs) and working Groups upon request. The contractor shall provide both the required HMMP Plan and Report to the Government for review using NAS 411, paragraph 5.2 and 5.3, respectively.

***For elimination of use of Ozone Depleting Substances (ODS):***

40CFR82 lists the chemicals identified as Class I and Class II ODS.

Unless the requiring activity has obtained prior Senior Acquisition Official (SAO) approval from the Army Acquisition Executive (AAE), contractors may not:

- a. Provide any quantity of Class I ODS;
- b. Provide any service or product that is defined by any specification, standard, drawing, or other document that requires the use of a Class I ODS in the test, operation, or maintenance of any system, subsystem, item, component, or process; or
- c. Provide any specification, standard, drawing, or other document that establishes a test, operation, or maintenance requirement that can only be met by use of a Class I ODS.

In the event, the requiring activity has obtained SAO approval from the AAE to permit the contractor to use specific Class I ODS, the contractor shall provide Class I ODS/ Application or Use/Quantity (lbs.) per contract period of performance.

*[List each Class I ODS, its applications or use and the quantities identified in the associated SAO approval for use throughout the length of the contract. If "None," so state.]*

**Figure 3–1. ESOH contract language examples—continued**

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The offeror/contractor must notify the contracting officer if any Class I or Class II ODS is required in the production, test, operation, or maintenance of any system, subsystem, item, component, or process.

The offeror/contractor must notify the contracting officer if any Class I or Class II ODS is known to be used by a subcontractor in the production, test, operation, or maintenance of any system, subsystem, item, component, or process.

Figure 3–1. ESOH contract language examples—continued

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### 3–31. System safety program

*a. Introduction.* The MATDEVs establishes a System Safety program to meet the safety risk management requirements of AR 70–1, paragraph 1–5j. The Safety Risk Management Process contains five steps: identify hazards, assess risk, make risk decisions, implement, and supervise. The system safety function supports the MATDEVs risk management process. The document that describes how the MATDEV will identify, track, and manage the system hazards is the Human Systems Integration Plan (HSIP). As an integral part of the PESHE, the HSIP should be summarized in the ASR, especially if the MATDEV has tailored the program’s Risk Decision Authority Matrix such that it changes the levels of decision authority from the DA standard (see AR 70–1).

*b. System safety.*

(1) The PEOs are designated as the safety officers for their systems. The PEOs in turn, rely heavily on their PMs to fully integrate their system safety programs into their developing systems. The PMs can tailor their system safety integrated product teams (SSIPTs) to meet the requirements based on the program’s ACAT.

(2) Fundamental information on system safety management can be found in the ASA (ALT) Digital Library. This information can provide PEOs, PMs, CBTDEVs, TNGDEVs, MATDEVs, testers, independent evaluators, and system safety engineers with the information necessary to develop, initiate, and effectively manage their system safety program. The information is intended to provide users, to include commanders at all levels, with information on how system safety programs can be carried out to enhance their force protection mission. The appropriate level of authority makes risk decisions pursuant to the Decision Authority Matrix outlined in the HSIP for the system. The following information helps guide system design, training, or use for current systems and future system development:

*(a) Risk management process.* Safety risk management is the five (5)-step process (hazard identification, hazard risk assessment, risk decision, implementation, and supervision) that the Army uses to balance safety with mission effectiveness. Supporting the risk management process is a system to track hazards. Such a system provides the means for tracking the life cycle disposition of hazards or acceptance of risk. The formal means of documenting the acceptance of risk is the System Safety Risk Assessment.

*(b) System safety risk assessment.* A formal system safety risk assessment (SSRA) is used to document the acceptance of an ESOH risk exceeding the criteria for a low level residual risk. For low level residual risks, the PM may document the low risk acceptance in a memorandum for record, or in the SSIPT minutes. Guidance is provided for independent evaluation, preparation, and documentation of the standalone SSRA. The SSRA builds the audit trail to document the risk coordination, concurrence/non-concurrence, and formal risk decision. A sample SSRA format is provided in figure 3–2.

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**Sample Format  
System Safety Risk Assessment**

Part I

1. Item and system identification. (For systems containing radioactive materials or explosives, a brief statement will include identifying the status of the radioactive material license, Army authorization, range fans, or the applicable hazard classifications as listed.)
2. For each residual hazard, provide the following:
  - a. Hazard name.
  - b. Hazard description (list relevant human-machine-environmental and operations condition as well as expected outcomes of these conditions).
  - c. Hazard (severity and frequency according to MIL-STD-882) (these values should consider existing controls already in existence).
  - d. Source document or reference (test results, safety assessments, hazards analysis, accident report).
  - e. Existing controls that were in place but failed (consider all aspects of DOTMLPF – Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities).
  - f. Controls that could reduce hazard level (consider DOTMLPF):
    - (1) Identify residual risk for each control.
    - (2) Estimate cost and schedule for control implementation.
    - (3) When applicable, identify and assess new hazards resulting from a given control.
3. Recommendations regarding risk acceptance.

***(Project office signature)***

Part II

Recommendation by the appropriate Safety Manager (for example, AMC Safety Manager or USACRC).

***(Safety)***

Part III

Recommendations by the Combat Developer

***(Designated user representative)***

Part IV

Recommendations by the Materiel Developer

***(Designed developer representative)***

Part V

Decision of appropriate Risk Decision Authority (Table 1-1 of AR 70-1).

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**Figure 3–2. Sample format for a SSRA**

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(c) *Hazard tracking system.* The PM develops and maintains a hazard tracking system (HTS) for their program. The HTS supports risk management by providing the PM a data base to capture identified hazards and lessons learned, track

status of the hazard corrective action or acceptance, and provide a communication forum. The HTS tracks the status of all identified hazards throughout the life cycle of the system. The status will reflect approval of the appropriate decision authority and whether the corrective measure has been applied. Once identified, the hazard should never be removed from the HTS during the life cycle of the hardware and the successor systems. Additionally, the HTS provides an audit trail detailing hazard closeout methods and criteria within the functional steps of the safety risk management process. The PM should consider historical accident experience as well as safety and health data (system safety lessons learned) from predecessor systems of similar function to and identify and manage like hazards which have resulted in accidents; one source of this data is available from the Army's Risk Management Information System located at <https://crc.army.mil/home/>.

(d) *Commercial/non-developmental item market survey.* Provides basic system safety questions that should be included in any commercial/NDI market investigation/survey.

(e) *Independent safety assessment format.* The PM will coordinate with the Director of Army Safety, U.S. Army Combat Readiness Center (USACRC), and the Office of the DASA (ESOH) to obtain an Independent safety assessment (ISA) for ACAT I and II programs. The ISA is the formal document used to communicate the system safety program status and any unresolved significant hazards to the MDA during milestone reviews. In addition, ISAs support preparation of HSI Assessments, TEMPs, and other program documentation. The ISA consists of two elements. First, a transmittal letter signed by the USACRC Commander that summarizes the ISA. The second element is a technical report prepared by the USACRC.

(f) *System safety integrated product team charter.* The PM charters a SSIPT. The Acquisition, Technology and Logistics Knowledge Sharing System (AKSS) provides information on responsibilities and roles of the SSIPT (the SSIPT is sometimes called a System Safety Working Group).

(g) *Safety and health data sheet.* The safety and health data sheet (SHDS) summarizes the safety status of a system in support of a milestone decision review or in support of a materiel release action. The supporting safety office provides the SHDS and summarizes the safety effort on a particular system. Figure 3–3 provides a sample format for the SHDS.

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**Sample Format  
Safety and Health Data Sheet**

Item/system identification: Name/nomenclature

1. Dates of safety confirmation letters are as follows:
  - a. Developmental test(s), including findings of both the Testing Activity and the Independent Evaluation. (date of confirmation letter).
  - b. Operational test(s) (date of confirmation letter).
  - c. Production test(s) (date of confirmation letter).
  - d. Safety Assessment Reports.
  - e. Special Safety Studies and Assessments.
  
2. Item (does) (does not) contain radioactive materials and (if it does) is properly licensed by the Nuclear Regulatory Commission (NRC) (number) and/or DA authorization (number), as appropriate. If NRC license or HQ authorization has not been obtained, provide status of current effort with a planned approval date prior to Government possession of those items.
  
3. Item (does) (does not) contain explosives and (if it does), the following activities should be addressed:
  - a. (Interim) (Final) Hazard classifications. (Provide hazard classifications for the item and all of its explosive components, which require a separate shipping configuration, and dates when final hazard classifications (were) (will be) approved). Interim and Final Hazard Classifications data shall include the following:
    - (1) Quantity-distance class (1.1, 1.2, 1.3, 1.4, etc.).
    - (2) Storage compatibility group (A, B, C, D, E, F, etc.).
    - (3) Department of Transportation (DOT) class (class A explosive, class B explosive, etc.).
    - (4) DOT marking (marking according to code of Federal Regulations, Title 49, Part 172.101).
    - (5) Net explosive weight.
    - (6) Net propellant weight in pounds and kilograms.
    - (7) Explosive weight for QD purposes (based on TNT equivalency tests if propellant is involved).
    - (8) DOT EX NUMBER (if applicable)
  - b. Range safety data.
    - (1) Maximum range and ordinate (as determined by test or analogy).
    - (2) Drift and probable errors (as determined by test or analogy).
    - (3) Ricochet characteristics (as determined by test of analogy).
    - (4) Sound pressure levels (as determined by test or analogy).
    - (5) Fragmentation radius (as determined by test or analogy).
    - (6) Rearward debris and/or blast and over pressure (as determined by test or analogy).
    - (7) Laser range safety criteria (as determined by test or analogy).
    - (8) Meteorological limitations (as determined by test or analogy).
  - c. Insensitive munitions. It should contain the following data:
    - (1) Threat Hazard Analysis (THA) completed.
    - (2) Fast cookoff (passed/failed).
    - (3) Bullet impact (passed/failed).
    - (4) Sympathetic detonation (passed/failed).
    - (5) Fragment impact per THA (passed/failed).
    - (6) Slow cookoff per THA (passed/failed).
    - (7) Shaped charge jet per THA (passed/failed).
    - (8) Electromagnetic pulse (passed/failed).
    - (9) Electrostatic discharge (passed/failed).
  - d. Explosive Ordnance Disposal (EOD) procedures and rendering safe and disposing of explosive items developed (yes) (no). Emergency entry and downloading EOD procedures prepared for Army Combat Vehicles, Remotely Piloted Vehicles, and Army Aircraft (yes) (no).

Figure 3–3. Sample format for the SHDS

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e. Minimum non-propagation distance, as applicable (based on test and evaluation data). If minimum non-propagation data will be required for production then that data must be available prior to type classification. If it will be required for out-year activities (i.e., demil, disposal, retrofit, rebuild) then that data must be available prior to Materiel Release of the item. If minimum non-propagation distance data (i.e., conveyor spacing data) is not required that decision must be documented with concurrence of AMCOM or AFSC, as appropriate.

f. Demilitarization and disposal procedures for disposal of hazardous, excess, or obsolete munitions.

g. Safety certification from the Army Fuze Safety Review Board as applicable (date and restrictions).

4. Item (does) (does not) contain munitions. If it does, compatibility of the following weapon/ammunition components has been established: (List compatibility components.)

5. Item (does) (does not) produce health hazards. The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) has performed a HHA and the following corrective actions (were) (will be) implemented (include the USACHPPM HHA report as an addendum).

6. Transportability/Roadability has been approved for all required modes of transportation.

7. Non-developmental item. (Use only if reporting a non-developmental item.)

a. Results of the user or market investigation indicate that all safety and health features and characteristics specified in the capabilities document (are) (are not) commercially available. (List those that are not available and a brief statement of the impact of their non-availability.)

b. All safety and health features and characteristics that were both specified in the capabilities document and verified as available by the user or market investigation (have) (have not) been included in the performance specifications for the item. (List those that have not been included and provide a brief statement of the impact of the exclusion.)

c. Item (does) (does not) involve hazardous materials and (if it does) demilitarization/disposal and EOD procedures (if applicable) have been developed.

8. Risk assessment. Perform a risk assessment of identified high and medium risk level safety and health hazards based upon the decision authority matrix contained in the system safety management plan and guidance found in the Government- Industry Standard, MIL STD 882. This assessment will address hazards that are being fixed; or are yet to be fixed; or residual hazards that will not be eliminated by design. This assessment will define decisions regarding resolution of each identified hazard; design features and controls being or to be implemented for elimination or reduction of associated risks to acceptable levels; and describe any residual hazards concerning safety risks to user personnel and Government equipment/facilities that have not been eliminated through design. Provide program milestones for planned corrective actions on hazards yet to be resolved during next acquisition phase. If a formal System Safety Risk Assessment (SSRA: AR 385-16; and Decision Authority Matrix of System Safety Management Plan) is required, it will be included as an addendum to this Safety and Health Data Sheet (SHDS).

9. Summary/Conclusions. Summarize the results of the above identified safety and health letters and reports. Identify any outstanding safety and health problems and indicate what corrective actions are planned and when they will be implemented and verified. Identify (if any) specific procedural controls and precautions that should be followed. Conclude with a statement as to whether or not the system is safe to test/operate/proceed to the next acquisition phase.

Prepared by: Government Program Safety Engineer. Coordination with the Program Manager (PM) is recommended.

Concurred in by: As many blocks as appropriate. Attach copy of the USACHPPM HHAR or AMC Surgeon endorsement stating the system has no potential uncontrolled health hazards associated with its use or maintenance as an addendum to the SHDS.

Figure 3–3. Sample format for the SHDS—continued

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Approved by: Chief, Safety Office. The SHDS establishes the position of the Life Cycle Management Command Safety Office for corresponding milestone decision.

Figure 3–3. Sample format for the SHDS—continued

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(h) *Human Systems Integration Plan.* The PM approves and implements a HSIP. The HSIP defines the system safety program requirements of the Government. It ensures the planning, implementation, and accomplishments of system safety tasks and activities consistent with the overall program requirements.

c. *Explosive safety.* The PM establishes an explosives safety program that ensures that munitions (including insensitive munitions), explosives, and energetics are properly hazard classified and safely developed, manufactured, tested, transported, handled, stored, maintained, demilitarized, and disposed. These program requirements must be in accordance with AR 385–64, TB 700–2, and other applicable Army and DOD regulations, directives, and standards.

d. *Occupational health.*

(1) *Health Hazard Assessment.*

(a) The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) serves as The Surgeon General's (TSGs) lead agent for the Army health hazard assessment (HHA) Program. The HHA Program identifies and assesses potential health risks associated with new or improved Army materiel systems. The USACHPPM prepares health hazard assessment reports (HHARs) to support Army acquisition programs in accordance with AR 70–1 and AR 40–10. (Also see para 3–29, above.)

(b) The HHAR provides the MATDEV/CBTDEV recommendations to mitigate identified health hazards. The MATDEVs/CBTDEVs integrate the HHAR recommendations into their Systems Engineering and Risk Management Processes.

(c) The CBTDEV/MATDEV provides reimbursement for onsite HHA support and medical research related to materiel health effects. Work requested from Army Medical Department (AMEDD) commands other than USACHPPM may require reimbursement (for example, whole body vibration, non-auditory blast overpressure, and climatic injury modeling).

(d) The MATDEV/CBTDEV provides the USACHPPM HHA program with feedback on documented risk mitigation and management decisions associated with the health hazards identified in the HHAR (for example, SHDS; Programmatic Environment, Safety, and Occupational Health Evaluation; HSI Assessment; safety releases; and other appropriate documents).

(e) Appendix D provides the MATDEVs/CBTDEVs with details on how to request USACHPPM support for required HHARs.

(2) *Assistance.* U.S. Army Medical Department Center & School Directorate of Combat and Doctrine Development provides the CBTDEV with a review of requirements, development, and testing documents of material systems to include medical materiel in accordance with AR 40–10. This review ensures adequate considerations of known or potential health hazards occur. Contact the Directorate at U.S. Army Medical Department Center & School, Directorate of Combat and Doctrine Development, MCCS–FCC–P, 1400 E. Grayson St, Suite 219, Room 226H, Fort Sam Houston, TX 78234–5052.

e. *Toxicity clearances.*

(1) The Army Toxicity Evaluation Program provides toxicity clearances for chemicals and other potentially toxic materials proposed for use by Army personnel in accordance with AR 40–5. The toxicity clearance is a functional area of Army Preventive Medicine. The USACHPPM may be required to conduct inquiries, toxicity studies, and literature reviews to support the toxicity clearance request for introduction of a new materiel into the Army supply system. The end result is a summary of the toxicological properties and a conditional approval from a toxicological standpoint for the safe use of the product in a specific Army application. The toxicity assessment may result in disapproval of use of the product. USACHPPMs point of contact is: U.S. Army Center for Health Promotion and Preventive Medicine, 5158 Blackhawk Road, MCHB–TS–TTE, APG, MD 21010–5403. Their Web site is <http://chppm-www.apgea.army.mil>.

(2) A toxicity clearance is a formal approval procedure to use a new material or chemical application and introduced into the Army supply system based on specific application and health implications. Toxicity Clearance approval is required for new chemicals and materials entered into the Army acquisition system if not addressed in a HHA. The toxicity clearance does not replace but is in conjunction with the Occupational Safety and Health Administration (OSHA) requirements for Hazardous Communications in Section 1200, Part 1910, Title 29, Code of Federal Regulations (29 CFR 1910.1200). The procedure to request and the information required to perform a toxicity clearance are found in AR 40–5. The toxicity

clearance process can be accomplished in a timely manner through a verification of a completed Material Safety Data Sheet with appropriate technical documentation on specific constituents. Figure 3–4 is a sample format for each toxicity clearance request.

(3) The CBTDEV/MATDEV provide reimbursement for all onsite HHA support and medical research related to materiel and operational specific military unique health effects. Work requested from commands other than USACHPPM requires reimbursement. For example, whole body vibration, non-auditory blast overpressure, and some climatic injury modeling.

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## MEMORANDUM

FOR COMMANDER, U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE,  
ATTN: MCHB-TS-T, ABERDEEN PROVING GROUND, MD 21010-5403

SUBJECT: Request for Toxicity Clearance for [subject chemical or process]

Importantly, each Toxicity Clearance request should identify the new chemical or material; its manufacturer with address, technical point of contact and phone number; specific use conditions or application; and any technical information supplied from the manufacturer including:

Scope and use in the commercial marketplace

Any human or animal toxicity study information

A material safety data sheet (MSDS), listing all components including proprietary materials.

Any adverse human health effects reported

Chemical or process being replaced

More detailed technical information provided with the Toxicity Clearance request will aid in a more timely toxicity evaluation and approval for the program.

Additional information may be obtained from the U.S. Army CHPPM MCHB-TS-T, (410) 436-3980.

Figure 3–4. Sample toxicity clearance request

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### 3–32. Environmental, safety, occupational, and health as part of acquisition milestone reviews

*a.* The MATDEVs of all ACAT-level systems must be prepared to address ESOH risk management during milestone reviews. MATDEVs should provide a minimum of one presentation slide summarizing the ESOH risk management process, current hazards (number and risk level) and demonstrating compliance with DODI 5000.02 requirements. The presentation should be available for all IPT, overarching IPT (OIPT) and MDA reviews. In addition, MATDEVs must have a copy of the NEPA Compliance Schedule. Evaluation criteria to be addressed by the milestone review ESOH presentation can be found on the ASA (ALT) Digital Library.

*b.* As MATDEVs approach acquisition milestone reviews, the U.S. Army Environmental Center (USAEC) will request permission to review the MATDEVs ESOH risk management process on behalf of the DASA (ESOH) and ASA (I&E). A list of questions concerning ESOH risk management including ESOH costs can be found on the ASA (ALT) Digital Library. It is recommended that MATDEVs initiate coordination with USAEC early in the acquisition process when developing their ESOH risk management strategy. USAEC can be contacted at U.S. Army Environmental Center, Acquisition Branch (SFIM–AEC), 5179 Hoadley Road, Aberdeen Proving Ground, MD. 21010–5401. The web site is <http://aec.army.mil/usaec>.

### 3–33. Environmental, safety, occupational, and health as part of Army Cost Review Board reviews

As MATDEVs approach the Cost Review Board Working Group Meeting with DASA–CE in preparation for the Army Cost Review Board, the environmental quality life cycle cost estimate (EQLCCE) should be included in the total ownership cost for the system as part of their overall program office estimate (POE). The Army Cost Analysis Manual (chapter 6) provides guidance for identifying and capturing EQLCCE costs that include work breakdown structure cost elements and cost accounting procedures. The USAEC represents installation interests regarding new or improved Army acquisition



programs and their impact on installation operations and provides the DASA (CE) with technical support regarding this aspect of EQLCCEs. Further, MATDEV cost analysts should seek specific guidance from DASA-CE.

## **Section VII**

### **Commercial and Non-Developmental Items**

#### **3-34. Commercial and non-developmental items considerations**

Consideration of the use of commercial and NDI, as defined in the FAR Part 2, has become an integral part of acquisition reform. The Federal Government has expressed its preference for the acquisition of commercial items by law (10 USC 2377) and in Title VIII of the Federal Acquisition Streamlining Act of 1994 (Public Law 103-355).

#### **3-35. Commercial and non-developmental item guidance**

*a.* The FAR Part 12 implements this preference by establishing acquisition policies more closely resembling those of the commercial marketplace and encouraging the acquisition of commercial items and components.

*b.* The DOD Handbook Standardization Directory-2 (SD-2) provides excellent guidance, “lessons learned” and “things to consider” when buying commercial items and NDI, whether as systems, components, or items. Topics covered include market research, acquisition strategy, requirement definition, logistic support, test and evaluation, and product assurance. There are two case studies illustrating successful techniques for commercial item acquisition, as well as a number of “mini-case” examples throughout the SD-2 handbook. Market surveys should include an analysis of the ESOH impacts of procuring NDI and commercial item products in determining the most feasible systems.

*c.* The 10 USC 2350a(g) prescribes funding for the U.S. to test and evaluate foreign equipment and material that has potential to satisfy valid DOD requirements through the foreign comparative testing (FCT) program (see para 4-10 and AR 70-41 and AR 73-1 for additional FCT information). The FCT program provides a viable means of testing foreign commercially available NDI for potential U.S. Army acquisition and offers a structured, funded means for program offices to evaluate the suitability of a foreign developed item for procurement. Each program must document the results of market research, the rationale for the commerciality decision, and any attempt to change requirements in order to facilitate a commercial acquisition.

*d.* The Defense Acquisition Challenge (DAC) program is congressionally mandated and authorized under 10 USC 2359b to provide opportunities for the increased introduction of innovative and cost-saving technologies into current DOD acquisition programs. The OSD Comparative Testing Office and, within the Army, RDECOM (for the Commanding General, AMC as the Responsible Official) administers the DAC program. The objective of the DAC is to provide any person or activity the opportunity to propose alternative “challenge proposals” at the component, subsystem, or system level that would result in improvements in performance, affordability, manufacturability, or operational capability of the affected acquisition program. The DAC program provides oversight and funds for the test and evaluation of technologies that have potential to improve Army acquisition as noted. Further DAC information is available by contacting Director, International, Interagency, Industry and Academia (AMSRD-SS-I), RDECOM.

*e.* The DOD Commercial Item Handbook provides further guidance on sound business strategies for acquiring commercial items. It contains chapters on market research, making commercial item determinations, pricing and contracting for commercial items. Appendices contain support and information resources, and suggested formats and checklists.

*f.* Refer to paragraph 1-10*t* for spectrum supportability requirements.

## **Section VIII**

### **Small Business Strategy**

#### **3-36. Small business strategy development**

The supporting ACOM Associate Director for Small Business Programs or their designee will draft the small business and small business subcategories strategy of the overall acquisition strategy in support of and in coordination with the PM. The small business strategy should be developed after conducting market research to identify and assess the capabilities of small business and historically black colleges and universities/minority institution (HBCU/MI) given requirements and available opportunities in each program phase. The strategy needs to describe, in realistic terms, the opportunities that will be available as small business/HBCU/MI primes and as small business subcontractors in each phase of the program. The small business strategy should be reviewed and updated, at a minimum, prior to milestone reviews or before implementing changes to the program baseline during any phase in order to reassess the market place and small business/HBCU/MI capabilities consistent with the program requirements. It should be in sufficient detail to allow supporting contracting

offices to provide input into the Army Annual Acquisition Forecast and to guide the supporting small business specialists in their outreach and market research efforts in support of the program.

### **3–37. Small business strategy references**

The HQDA Office of the Small Business Program (OSBP) can provide additional information and assistance on small business strategies. FAR Part 19.5, AFARS 5119.201, AFARS 5119.704, and AR 70–1 provide small business strategy policy and guidance.

## **Section IX**

### **International Cooperative Research, Development, and Acquisition**

#### **3–38. International cooperative research, development, and acquisition determinations**

10 USC 2350a(e) requires an analysis of potential opportunities for international cooperation for all ACAT I programs. DODD 5000.01 and DODI 5000.02 specify requirements to consider international armaments (in other words, ICRDA) cooperation and to achieve interoperability with U.S. allies and coalition partners.

#### **3–39. Documenting international cooperative research, development, and acquisition determinations**

*a.* The acquisition strategy will include an assessment of the potential to conduct ICRDA and a determination whether ICRDA could satisfy U.S. requirements. This assessment and determination should address the potential for international cooperation at every phase of the acquisition process. The decision to execute ICRDA should be made at the earliest possible phase. All considerations and determinations will remain consistent with the maintenance of a strong national technology and industrial base and mobilization capability.

*b.* For specific ICRDA agreements' guidance, see paragraph 8–5.

## **Chapter 4**

### **Test and Evaluation**

#### **4–1. Overview**

*a. Purpose of Army test and evaluation.* The purpose of T&E is to assess system progress toward operational effectiveness, suitability, and survivability. All T&E, as it supports the system development and acquisition process, is intended to provide information on risk identification and mitigation to the Army decision makers. Risk must be accounted for (in concert with cost, schedule, performance, and supportability) when considering a system's programmatic progress throughout its development life cycle and prior to major milestone decision reviews. Army programs are structured to integrate developmental test (DT), operational test (OT), combined DT/OT, live fire test and evaluation (LFT&E), system evaluation, and M&S as a continuum. (See DA Pam 73–1, chaps 5 and 6.)

*b. Test and evaluation strategy.* Planning for a T&E strategy begins early. The T&E strategy supports the acquisition strategy and confirms system achievement of objectives and thresholds defined in the JCIDS documents. The document containing the T&E strategy is the TEMP. The MATDEV/PM has the overall responsibility to develop the TEMP. Additional information may be found in AR 73–1, paragraph 10–2, DA Pam 73–1, chapter 3, and the "TEMP Preparation 101" briefing located at the Army T&E page on AKO that is maintained by the Test and Evaluation Management Agency (TEMA) (<http://www.hqda.army.mil/tema>). For TEMPs not requiring HQDA or OSD approval (generally ACAT III programs), tailoring is authorized. While the format in DA Pam 73–1 is a guide, tailoring is allowed to reduce the TEMP development effort and minimize its size.

*c. Test and evaluation working-level integrated product team.* The MATDEV/PM will form a T&E WIPT. The PM, PEO, or acquisition authority, for all systems regardless of ACAT level, will charter the T&E WIPT as soon as the ICD is approved or following CDD or CPD approval if the requirement for an ICD is waived. The T&E WIPT will assist the PM in managing system T&E throughout the system's life cycle. The primary objective of the T&E WIPT is to develop, document, and implement the T&E strategy in the TEMP. Additional information on T&E WIPTs can be found in AR 73–1, chapter 8. DA Pam 73–1, figure 3–1, provides the TEMP Development and T&E WIPT Coordination Process.

#### **4–2. Test and evaluation roles and responsibilities**

Full coordination and integration of the T&E effort are essentials for a timely, effective, and efficient T&E program.

*a. Army test and evaluation executive.* The Army T&E Executive, within the office of the Deputy Under Secretary of the Army (DUSA), has approval authority for Army TEMPs that require HQDA approval and oversight on all Army T&E

policy and procedural issues. AR 73–1, chapter 2, describes the current roles and responsibilities for organizations involved in T&E.

*b. Army acquisition manager test and evaluation responsibilities.*

(1) *Program executive officer.* The PEO provides the overall management of the T&E activities of assigned systems' development and acquisition. Per AR 70–1, the PEO approves materiel system readiness certification operational test readiness statements (OTRSs) for assigned programs.

(2) *The MATDEV/PM.* The PM designs, plans, programs, coordinates, and executes a viable T&E program in conjunction with the T&E WIPT. Key MATDEV/PM responsibilities are listed below. (See AR 73–1, paragraph 2–28 for other T&E duties the MATDEV/PM performs.)

(a) Establishes and chairs a T&E WIPT to develop the T&E strategy, to coordinate and solve routine problems. When developing the T&E strategy with the T&E WIPT, ensures that appropriate testing during system development is planned and conducted to support the independent system evaluation or assessment. Substantive issues not resolved by the T&E WIPT will be elevated through the chains of command of the participating T&E WIPT members for resolution, and if necessary to the Army Test and Evaluation Executive. (See DA Pam 73–1, fig 2–1.)

(b) Prepares, coordinates, distributes, and updates the TEMP. (See AR 73–1, para 10–2 and DA Pam 73–1, chap 3.)

(c) Provides T&E support to design, plan, execute, assess, and report developmental T&E programs or portions of developmental T&E programs, in support of managed systems.

(d) Ensures effective and timely system integration during the system life cycle to enable total system T&E.

(e) Provides adequate and efficient design reviews, audits, and quality assurance (QA) in support of the system T&E program.

(f) Establishes and co-chairs a Threat Subgroup (that is, a subordinate working group of the T&E WIPT) to monitor intelligence support and assist in resolving complex, detail oriented threat issues associated with modeling and simulation, developmental and operational testing, and related evaluation. Coordinates with TRADOC, Assistant Deputy Chief of Staff for Intelligence, G–2 (ADCS, G–2)–Threats and the proponent Threat Manager, AMC G–2, proponent Foreign Intelligence Officer, and with DCS, G–2 (DAMI–FIT) who will serve as co-chair as appropriate to the integrated test schedule. The Threat Subgroup relies on the systems threat assessment report (STAR) and the appropriate, approved JCIDS capabilities-based requirements document as the foundation for its activity. The Threat Subgroup supports the T&E WIPT and the M&S WIPT by identifying specific threat scenarios and capabilities that should be portrayed during development of the T&E strategy. The Threat Subgroup subsequently assists the T&E WIPT to integrate these threat capabilities into an appropriate TEMP based on threat requirements from evaluation criteria and the scope of test for each T&E event. In this latter role, the Threat Subgroup identifies existing threat resources that could be applied to the program and highlights shortfalls. Shortfalls that are potentially applicable to more than one development are reported to the Threat Systems IPT (includes threat community participation) for budgeting and execution planning. Substantive threat issues that cannot be resolved by the Threat Subgroup will be elevated through channels to the Threat Steering Group for resolution. If resolution is not achieved, the issues will be elevated to the program's OIPT. As chair of the T&E WIPT, the MATDEV/PM develops timelines for the generation of a threat test support package (TSP); delivery of appropriate threat representations; and provides resources and management support for the acquisition, timely delivery, and non-standard logistics support of PM funded resources needed to support threat TSP implementation. This includes system intelligence support, specific threat representations, and all expendable targets needed to support testing for an approved threat in both "live" and "M&S" applications. (See DA Pam 73–1, paras 5–14 and 6–60.)

(g) Develops and provides system support package (SSP), a new equipment training (NET) TSP, and coordinates instructor and key personnel training (IKPT) in accordance with AR 700–127 with proponent school(s). The threat community provides support and review of documentation. (See DA Pam 73–1, paras 6–55 through 6–61.)

(h) Provides test support documentation for test items to test organizations. (See AR 73–1, chap 10.)

(i) Provides proponenty and management oversight to the preparation of environmental documentation, such as environmental assessments and environmental impact statements (EIS), in accordance with 32 CFR Part 651. (See DA Pam 73–1, appendix P.) DODI 5000.02 directs that test planning will consider the potential testing impacts on the environment. The PM provides NEPA-related data as well as programmatic NEPA documentation to the test organizations prior to conduct of any test activities and the test organization prepares NEPA documentation specific to impacts on the test environment.

(j) Provides testers and evaluators the opportunity to participate in preparing the testing portion of the request for proposal (RFP) to ensure that T&E requirements are accurately reflected in contractual documents. Communicate changes occurring during contract negotiations that affect testing to the T&E WIPT. Update the TEMP to reflect those changes.

(k) Participates in test readiness reviews (TRRs). (See DA Pam 73–1, chap 6.)

(l) Develops, coordinates, and provides safety and health documentation such as the safety assessment report (SAR) and content for the HHAR to the Army tester and ensures a safety release is provided by the appropriate command prior to commencement of testing/training using Soldiers. (See DA Pam 73-1, paras 6-63, 6-64, and app N.)

(m) Ensures, in coordination with the T&E WIPT and threat TSP developer, that T&E of all systems, including threat support, is planned and conducted in all appropriate test events such that sufficient stresses on the system occur in live or representative natural and threat operational environments, in accordance with MIL-STD-810 and DA Pam 73-1, paragraphs 6-32 through 6-33.

(n) Coordinates all testing with the USATEC to maximize the value of the Army's capital investment in test facilities. AR 73-1, paragraph 7-3; and DA Pam 73-1, appendix R, provide additional information on test facilities.

(o) Determines whether the program satisfies the requirements for a LFT&E program (10 USC 2366). (See AR 73-1, para 4-2b(6).)

(p) Provides test items representing the system under development to accomplish Force Development Test or Experimentation (FDT/E), DT, and OT. Additionally, provides test items that support limited user tests, warfighting experiments, and other activities that enable early system assessment and evaluation of doctrine, organization, training, leader development and education, personnel, and facilities concepts or products. Provides associated non-standard logistics support. Test items may include detailed, high fidelity models and simulations that address structure, multi-spectral signature, C4I integration, operation, and performance of the system under development; detailed models and/or simulations of subsystem or major component operation and performance; prototypes of the system under development; simulators of the system under development, its subsystems, or major components; pre-production units of the system under development; and/or low rate initial production (LRIP) units.

(q) Plans, programs, budgets, and allocates appropriate funding levels for M&S and testing in accordance with the TEMP, except for Joint T&E, follow-on operational T&E (FOT&E), and multi-service OT&E (MOT&E) where no Army PM is assigned. (See AR 73-1, chap 3, and DA Pam 73-1, paras 6-7 and 6-8.)

c. *Intelligence community.* The DCS G-2 (DAMI-FIT) will serve as the threat integrator to support a program and participate in the T&E WIPT. They may delegate this position to an appropriate TRADOC threat manager or AMC foreign intelligence officer. At program initiation, the intelligence community develops and publishes the STAR with the assistance and review of members of the threat steering group (TSG) (see AR 381-11, chap 3). They support the PM's development of threat related coverage in Integrated Program Summaries, TEMPs, and similar summaries and approves final threat language in these documents. The intelligence community participates in integrated product teams and validation working groups where threat is an issue. Early identification of threat test requirements is essential to a system's T&E success. Coordinate with DCS, G-2, TRADOC ADCSINT-Threats and proponent Threat Manager, AMC G-2, proponent Foreign Intelligence Officer, National Guard Intelligence Center (NGIC), and Threat Systems Management Officer (TSMO) for each test event to ensure correct threat operational environment is included.

### 4-3. Modeling and simulation

Accredited M&S is applied throughout the life cycle to support requirements definition; design and engineering; interoperability assessments; test planning, rehearsal and conduct; system behavior and performance predictions; manufacturing; logistics support; and training to include supplement to actual T&E. The Army has established verification, validation, and accreditation (VV&A) procedures for the use of M&S in support of T&E. These procedures can be found in AR 73-1, DA Pam 73-1, and the Army T&E page on AKO maintained by TEMA (<http://www.hqda.army.mil/tema>).

a. *Usage.* Digital models and simulations may be used in synthetic, natural, and man-made environments to support force-on-force; live fire; threat representation; C4I representation; system operational and inter-operational loading (stimulation); and early examination of Soldier interface and mission capabilities when live operations are either unsafe or resource prohibitive. In addition, force level models and simulations and/or Soldier in the loop virtual simulations may be used to extend live test findings so as to provide needed insight and data for system evaluation.

b. *Simulation test and evaluation process.* Army T&E is conducted to demonstrate the feasibility of conceptual approaches, evaluate risks, identify alternatives, and compare and analyze tradeoffs through an iterative process so as to verify the achievement of KPPs and critical technical parameters (CTPs) and answer critical operational issues and criteria (COIC). The simulation test and evaluation process (STEP) approach is to integrate M&S with T&E to reduce the time it takes to find problems, implement changes, and conserve live test resources while improving delivered design and performance, accelerating schedules and reducing costs. The STEP is integral to the T&E strategy, interacting with other acquisition processes and functions to provide information for acquisition decisions and provide feedback to all stakeholders and functional areas. STEP enhances the T&E process by using models and simulations to develop the overall T&E strategy, design tests, focus testing efforts and provide information that supplements live test data and results. Testing results (both the system under test and the representation of the threat(s) to the system) are used to update and validate models and simulations. The STEP process, model-simulate-fix-test, begins during MSA and is reiterated throughout the system

life cycle. As a system matures during the program life cycle toward the FRP Decision Review, a set of validated models and simulations evolves that represent the system and how the threat(s) to the system is represented, its interfaces, and its environment. These representations can be reused to significantly reduce risk, schedule, and costs in subsequent increments of an evolutionary acquisition. Successful STEP implementation begins with early planning to identify required resources to implement simulation support capabilities that will optimize T&E support to overall program objectives. (See DA Pam 73-1, para 5-21.)

*c. Simulation and modeling for acquisition, requirements, and training.* The simulation and modeling for acquisition, requirements, and training (SMART) is the Army's implementation of STEP and Simulation Based Acquisition (SBA). In the SMART context, validated simulation results support the decision-making process. The integrated use of simulation and testing supports system design and development. System models that are used in the T&E process should be the same as, or traceable to, the models used for concept development, AoA, system design, and production. Models and simulations that support the T&E process and synthetic test environments may also be used to support training; operations planning and rehearsal; logistics and reliability, availability, and maintainability (RAM) analyses; evolutionary acquisition of subsequent increments; and future concept developments.

#### **4-4. Continuous evaluation**

Continuous evaluation (CE) is the process that provides a continuous flow of T&E information on the progress towards a system's operational capabilities to all decision-makers. (See DA Pam 73-1, para 5-1.)

*a.* The CE process makes use of the basic T&E elements and statistical measures that are inherent outputs of development tools. This process provides an integrated and continuous flow of information to the CBTDEV, MATDEV, and Independent Evaluator on a proposed acquisition. The process encourages frequent assessments of a system's status during development of the initial system as well as subsequent increment improvements and can result in significant cost savings and reduce acquisition time through comparative analysis and data sharing. The CE also examines whether a system is operationally effective, suitable, and survivable and satisfies the mission needs. The CE is employed on all system acquisition programs.

*b.* Upon request, system evaluators provide independent system evaluations and assessments to MATDEV/PM, CBTDEV, and TNGDEV. While working in cooperation with the MATDEV/PM, CBTDEV, and other T&E WIPT members, the system evaluator must operate independently to ensure complete objectivity. (See AR 73-1 and DA Pam 73-1.)

#### **4-5. System evaluation**

Independent system evaluations and assessments are designed to provide unbiased advice of system development to the Army or DOD decision maker. The system evaluator, who is organizationally separated from the MATDEV/PM, CBTDEV, and TNGDEV, provides such advice, thereby ensuring a completely objective perspective. (See AR 73-1, chap 6 and DA Pam 73-1, para 5-4.)

*a.* The evaluation process consists of early and frequent assessments of system status during development. Early T&E involvement can significantly reduce test time and cost through comparative analysis, data sharing, use of M&S, and use of all credible data sources. The purpose of an evaluation is to ensure that only operationally effective, suitable, and survivable systems are fielded to the users. (See DA Pam 73-1, para 5-11.)

*b.* The system evaluation integrates experimentation, demonstration, and M&S information with available test data to address the evaluation issues, including COIC and additional issues (that is, evaluation focus areas). (See DA Pam 73-1, chap 4, paras 5-9, and app E.) The system evaluation plan (SEP) is focused on evaluation of the system in the context of mission accomplishment, performance, safety, health hazard, and operational effectiveness, suitability, and survivability. System assessment (SA) reports will occur at key points during the acquisition, before and after each milestone decision. As the system approaches a milestone or the FRP Decision Review, the system evaluator will produce a system evaluation report (SER). The SER serves to advise the decision review principals and MDA of the adequacy of testing, the system's operational effectiveness, suitability, and survivability, as well as system safety and recommendations for future T&E and system improvements. The system evaluation in support of the FRP Decision Review will use data resulting from the initial operational test (IOT), when conducted, as a major data source integrated with other credible data sources as defined in the SEP. (See para 4-14.)

#### **4-6. Developmental test**

*a. Introduction.* The DT is a continuum of tests inherent to development of the product with progression to a full-up system test. DT can include gradually increased user participation. DT is performed in controlled environments, on the target hardware in an operational-like environment for command, control, communications, and computer (C4)/information technology (IT) programs, and encompasses M&S and engineering type tests. (See DA Pam 73-1.)

(1) The DT is conducted to provide data with which to assess compliance with CTPs, identify technological and design risks, and to determine readiness to proceed to operational testing. DT substantiates the achievement of contractor technical specifications. (See DA Pam 73–1, paras 5–10 and 6–15.)

(2) The DT is conducted throughout the acquisition process to assist in the engineering design and development of a system and to verify that developmental performance specifications and specific safety requirements have been met. A contractor and/or the Government may conduct DT. A comprehensive DT program contributes to a successful initial operational test and evaluation (IOT&E). (See AR 73–1, chap 5, and DA Pam 73–1, chap 6.)

*b. Developmental test readiness review.* Developmental testers conduct developmental test readiness review (DTRRs) at various points leading up to the start of a DT test. The MATDEV/PM chairs each DTRR and certifies that the materiel system is ready for test. The DTRR assesses the system's readiness to enter DT. DTRR core membership, as a minimum, includes the PM/MATDEV, developmental tester, and system evaluator. (See DA Pam 73–1, paras 6–25 through 6–27.)

*c. Logistics demonstration.* See AR 73–1, paragraph 10–16 and DA Pam 73–1, paragraph 6–22.

(1) A logistics demonstration (LD) is required by AR 700–127, paragraph 3–22, for all new acquisition systems or system changes that have an operational impact, including any new or improved maintenance tasks or support and test equipment intended for support of the system. Normally the LD is conducted prior to the production decision. Unless the LD requirement is specifically waived, a logistics maintenance demonstration (LMD) must be conducted prior to the materiel release decision for commercial and NDIs or other programs where a LD has not been previously conducted. If exceptions are required, a request for waiver is submitted by the MATDEV/PM, based on guidance in AR 700–127, to the Deputy Assistant Secretary of the Army (Acquisition Policy and Logistics ) (DASA (APL)). LD waiver request coordination should occur with the CBTDEV and the ILS Division within the Materiel Systems Directorate at the Combined Arms Support Command.

(2) The TEMP includes the LD details and projected schedule.

(3) A LD evaluates the achievement of—

*(a)* Maintainability goals and supportability of the materiel design including the ability to detect the failure, isolate the failed replaceable or correctable component, and reinstate the system to an operational status with resources provided. When applicable to computer/software intensive programs, the demonstration must evaluate the entire system to include all hardware, software, and operator. Faults inserted must include operator-produced errors and software processing errors that the operator and/or maintainer should be able to check, fault isolate, and correct.

*(b)* The adequacy and sustainability of tools, test equipment, selected test programs sets, built-in test equipment, ASIOE, training, training resources and devices, technical publications, and maintenance instructions.

*(c)* The adequacy of trouble-shooting procedures, personnel skill requirements; the selection and allocation of spare parts, tools, test equipment, and tasks to appropriate maintenance levels; and the adequacy of maintenance time standards.

(4) Within available resources, a dedicated engineering prototype will be provided for the LD and typical maintenance personnel will be provided to demonstrate the tasks.

(5) A LD requires a demonstration plan, to include the data to be recorded and the evaluation procedures, and a final report that documents the results, analysis of findings, and recommendations for corrective actions. The event design plan (EDP) is the T&E model by which LD plans are prepared, consistent with AR 73–1, paragraph 10–4. If a LD supports a SER required for either Milestones B or C, and the FRP Decision Review, then an EDP will be developed. The PEO/PM/MATDEV develops a LD EDP in conjunction with the Supportability WIPT and the T&E WIPT. (See AR 73–1, para 10–16a and DA Pam 700–127.)

(6) The LD EDP describes the details of how troubleshooting and repair procedures will be demonstrated. The LD EDP provides details on logistic support resources provided for the demonstration, identification of the faults to be inserted, detailed procedures for conducting the demonstration, plans for collecting and analyzing resulting data, and any constraints or limitations.

(7) The PEO/PM/MATDEV develops a LD report in coordination with the Supportability WIPT and the T&E WIPT. The report documents LD results including specific task results, supporting analysis, and comments from demonstration players and data collectors. The LD report is completed 45 days prior to the next decision review. (See AR 73–1, para 10–16b.)

#### **4–7. Operational test**

The requirement to conduct OT is found in 10 USC 2399. (See AR 73–1, chap 5, and DA Pam 73–1, chap 6, section III.)

*a. Introduction.* The OT is a field test of a system or item to examine its operational effectiveness, suitability, and survivability. OT is conducted under realistic operational conditions with users who represent those expected to operate and maintain the system when it is fielded or deployed. (See AR 73–1, chap 5 and DA Pam 73–1, para 6–42.)

*b. Certification of readiness for operational test.* Prior to making the final decision to enter the OT phase of program development, the system must be certified by the MATDEV/PM, CBTDEV, TNGDEV, and the commander of the test

unit participants as ready for test. DA Pam 73–1, paragraph 6–46 provides the specific format to use when submitting OTRS and a Safety Release for troops supporting testing. The intent of the OTRS is to gain final consensus among all the acquisition participants that a system has matured to an acceptable level of risk that justifies the investment in operational tests. AR 70–1, paragraph 2–2j, stipulates that the PEO approves the MATDEV/PM’s OTRS for assigned systems.

*c. Operational test planning.* The OT is conducted prior to a FRP decision to confirm the system’s IOC. Planning must begin early. Data collected in support of an OT may satisfy PM requirements beyond just the FRP decision, to include full operational capability and materiel release.

*d. Operational test readiness review.* An operational test readiness review (OTRR) assesses the system’s readiness to begin OT. The OT agency (OTA) chairs each OTRR. Membership includes the PM, operational tester, CBTDEV, training developer/trainer, threat analyst, test unit, logistician, developmental tester, and system evaluator. The OTRR process addresses whether the IOT entrance criteria (established in the TEMP) have been met. (See DA Pam 73–1, para 6–45 and fig 6–7.)

*e. Contractor support.* The use of a MDAP contractor in support of IOT&E is limited by 10 USC 2399. It states in part “no person employed by the contractor for the system being tested may be involved in the conduct of the operational test and evaluation.” However, should the interim logistics, maintenance, and sustainment concept and SSP include interim contractor support, then exceptions/waivers through the Director of Operational Test and Evaluation (DOT&E) may be considered. (See AR 73–1, para 5–6, and DA Pam 73–1, para 6–51.)

*f. Low rate initial production quantity.* For programs on the OSD T&E Oversight List (link to the list located on the TEMA homepage: <http://www.hqda.army.mil/tema/>), the DOT&E determines the quantity of low rate initial production quantity (LRIP) articles procured for operational testing. Otherwise, the quantity of LRIP items needed for OT is recommended by USATEC in coordination with the PM.

#### **4–8. Interoperability testing**

Interoperability testing applies to all systems having interfaces or interoperability requirements with other systems. The program’s Net-Ready KPP is a source of interoperability requirements. Interoperability testing may consist of demonstrations using message analysis or parsing software with limited interface connectivity, or extend to full-scale scenario-driven exercises with all interfaces connected. (See DA Pam 73–1, para 6–66 and app O as well as chap 7, below.)

#### **4–9. Anti-tampering testing**

Anti-tamper component-level verification testing takes place as a function of DT and OT, but prior to production. Component-level testing will not assess the strength of the anti-tamper provided, but instead verify that anti-tamper components perform as specified by the system contractor or cognizant Government agency. (See DA Pam 73–1.)

#### **4–10. Foreign comparative testing**

The FCT Program is administered at OSD by DUSD (AS&C) Comparative Testing Office and within the Army by DASA (DE&C), the Test and Evaluation Management Agency (TEMA), and RDECOM. FCT is Congressionally mandated and authorized under 10 USC 2350a(g) (see DODI 5000.02, enclosure 6, para 9). The FCT program provides U.S. PMs/PEOs with another acquisition tool—an avenue to compete for U.S. funding to test and evaluate foreign NDI and technology to satisfy valid DOD near-term requirements more quickly and economically. The types of available FCT projects include a “qualification test” that tests and evaluates NDI from a sole foreign contender against U.S. requirements and a “comparative test” that tests and evaluates NDI from multiple foreign contenders against U.S. requirements, side-by-side. In addition, the FCT program allows for the occasional “technology assessment” of a foreign technology. The FCT program adheres to guidance in DFARS Part 211. AR 70–41 and AR 73–1, paragraph 3–10 provide further procedural guidance for the FCT program. Participating in the FCT Program does not relieve compliance with 10 USC 2533a or other foreign purchase identified under DFARS Part 225.

#### **4–11. International Cooperative Test and Evaluation Program**

The test and evaluation program (TEP) international agreements provide a mechanism for the U.S. and allies and foreign nations with which DOD has established TEP agreements to design and execute cooperative tests and to test equipment and materiel at one another’s T&E facilities. TEP arrangements are developed under bilateral memorandums of understanding (MOUs). Under such MOUs, which can be found at <https://iol.rdaisa.army.mil/production/iol/iol.nsf/mou-masters?openview> (password protected), the participants develop Project Agreements to design and execute cooperative test and evaluation projects of military technology and/or equipment. These MOUs may contain provisions to charge reduced costs for, or reciprocal use of, one another’s T&E facilities, thereby significantly reducing the overall cost of Army T&E and certification. Further international cooperative TEP information is available by contacting either DASA (DE&C)

or TEMA. Currently, the DOD has TEP international agreements with Australia, Canada, France and the United Kingdom; check with DASA (DE&C) to determine if MOUs exist with any other countries.

#### **4-12. Joint Test and Evaluation Program**

The Joint Test and Evaluation (JT&E) program is a congressionally mandated program (see AR 73-1, para 3-8, and DA Pam 73-1, para 6-6). These tests are concept based, not acquisition based, must be joint, and work to resolve a relevant joint problem. The purposes for a JT&E are:

- a. To assess multi-service interoperability.
- b. To evaluate technical and operational performance of interrelated/interacting systems under joint combat conditions.
- c. Validate system development and testing methodologies having multi-Service application.
- d. Evaluate improvements to joint technical and operational concepts.

#### **4-13. Test schedule and review committee**

The purpose of the test schedule and review committee (TSARC) is to ensure that all tests are scheduled with the appropriate Army priority and executed in the most efficient and effective manner possible with respect to resources. The TSARC is a continuing intra-departmental Army committee chaired by USATEC. The TSARC mission is to provide high-level centralized management of Army resources that maximizes the use of limited resources and minimizes the impact on unit operational readiness. See AR 73-1, chapter 9, for the TSARC functions, composition, and schedules.

#### **4-14. Test and evaluation key documents**

During the system acquisition process, T&E reviews are conducted and reporting documents are published that describe how the T&E requirements were or will be satisfied. Submission of T&E documentation (for example, plans, results, and reports) to OSD will comply with the policies and procedures in the DOD 5000 series. Key T&E documents are:

a. *TEMP*. Upon approval by the appropriate authority (the Army Test and Evaluation Executive is the Army approval authority for TEMPs requiring HQDA approval), the TEMP serves as a contract between the PM and the T&E community for executing the T&E strategy. Table 4-1 depicts the responsibilities of the primary T&E WIPT members in developing a TEMP. The TEMP provides key management controls for T&E in support of the acquisition process. (See DA Pam 73-1, chap 3, and the “TEMP Preparation 101” briefing at the Army T&E page on AKO maintained by TEMA (<http://www.hqda.army.mil/tema>.)

b. *Detailed test plan*. The detailed test plan (DTP) is prepared by the test organization responsible for a DT, OT, or live fire test (LFT) to outline “how” the T&E will be performed and how the test will be performed in support of the EDP and SEP. (See AR 73-1, para 10-7, and DA Pam 73-1, paras 6-30 and 6-40.)

c. *System evaluation plan*. The objective of the SEP is to ensure that T&E is effectively planned, conducted, reported, and evaluated during all phases of the acquisition process. The SEP documents the evaluation strategy and overall test/simulation execution strategy effort of a system for the entire acquisition cycle through fielding. Integrated T&E planning is documented in a SEP. The detailed information contained in the SEP supports parallel development of the TEMP and is focused on evaluation of operational effectiveness, suitability, and survivability. While the documents are similar, the TEMP establishes “what” T&E will be accomplished and the SEP describes what critical operational issues and additional issues of interest, data requirements/sources, analysis approach, threat representations, and major instrumentation will be addressed and evaluated. (See AR 73-1, para 10-3, and DA Pam 73-1, paras 5-11.)

d. *Event design plan*. An EDP is prepared by the developmental or operational tester for each test event to be conducted. The EDP fully describes the test to be conducted including the scope of the test, the data products required from the test, the methodology used to collect the data, and analysis of the data to be performed by the tester. The EDP is based upon the requirements identified and explained in the SEP. (See AR 73-1, para 10-4, and DA Pam 73-1, paras 5-23, 6-28, and 6-43.)

e. *Outline test plan*. An outline test plan (OTP) is prepared by the test organization for all tests that require Army or other Service personnel or other resources (for example, training ranges, OT instrumentation, flying hours, standard ammunition, training devices, or other items). It identifies and schedules the required resources and provides administrative information necessary to support each test. When an OTP becomes a part of the approved Five Year Test Program (FYTP), it is a formal resource planning and tasking document (see AR 73-1, para 10-9). All programs must have an Army approved TEMP before they can compete in the TSARC process for resources and commitments to provide such resources. All new and revised OTPs will be coordinated with the system’s PM before being submitted to the TSARC. The OTP is prepared by the tester and evaluator and submitted through USATEC to the TSARC. The OTP is the “with what” planning document used throughout the T&E community as well as TRADOC and Forces Command (FORSCOM) for general test planning, scheduling, funding and execution. (See AR 73-1, paras 10-8 and 10-9.)



**Table 4–1  
TEMP preparation responsibility matrix:**

TEMP SECTION	PM	CD/FP	TI	T&E Activity	LOG
Part I. System Introduction					
a. Mission Description	S	P			
b. System Description	P	S			
c. System Threat Assessment	S		P	S	
d. Measures of Effectiveness and Suitability	S	P		S	S
e. Critical Technical Parameters	P	S		S	S
f. Future Combat System Enabler Linkages	P			S	
Part II. Integrated Test Program Summary					
a. Integrated Test Program Schedule	P	S		S	S
b. Management	P	S		S	S
Part III. Developmental Test and Evaluation Outline					
a. Developmental Test and Evaluation Overview	P			S	S
b. Future Developmental Test and Evaluation	P			S	S
Part IV. Operational Test and Evaluation Outline					
a. Operational Test and Evaluation Overview	S			P	S
b. Critical Operational Issues and Criteria	S	P		S	
c. Future Operational Test and Evaluation	S	S		P	S
d. Live Fire Test and Evaluation	S			P	
Part V. Test and Evaluation Resource Summary					
a. Test Articles	S			P	S
b. Test Sites and Instrumentation	P	S		P	S
c. Test Support Equipment	S		S	P	S
d. Threat Representation	S		S	P	
e. Test Targets and Expendables	P		S	P	
f. Operational Force Test Support			S	P	
g. Simulations, Models and Testbeds	P	S		P	
h. Special Requirements	S			P	
i. T&E Funding Requirements	P			P	
j. Manpower/Personnel Training		P		P	S
Annex A Bibliography	P	S	S	S	S
Annex B Acronyms	P	S	S	S	S
Annex C Points of Contact	P	S	S	S	S
Attachment 1: Requirements/Test Crosswalk Matrix	P	S		S	
Other Annexes/Attachments	P				

Legend:

P: Principal Responsibility

PM: Program Manager

LOG: Logistician

TI: Threat Integrator

S: Support Responsibility

CD/FP: Combat Developer/Functional Proponent

*f. Test incident report and corrective action report.* A test incident report (TIR) describes the minimum essential data for test incidents as they occur, their respective corrective actions and status. The corrective action report (CAR) outlines the measures to be taken and corrective action data that addresses the test incidents and advises the decision makers on resolution. The PMs, CBTDEVs, evaluators, and other organizations participating in the acquisition process must be informed of system performance during tests in a timely manner to initiate corrective actions and conduct required evaluations or assessments. The TIR must document ESOH impacts identified during system testing. (See AR 73–1 and DA Pam 73–1.)

*g. Test readiness statements.* See DA Pam 73–1, chapter 6.

(1) *Developmental test readiness statement.* A developmental test readiness statement (DTRS) is a written statement provided by the PM as part of the minutes. The statement documents that the system is ready for the production qualification test (PQT) or that the C4I/IT is ready for the software qualification test (SQT). (See AR 73–1, para 10–11.)

(2) *Operational test readiness statement.* The OTRS is a written statement prepared by the CBTDEV, MATDEV/PM, training developer/trainer, and test unit commander before the start of OTs for use during the OTRR. The OTRS addresses or certifies the readiness of the system and test unit for testing in each member's area of responsibility. OTRSs may also be required for some FDT/E and should be specified in the OTP. (See AR 73–1 and DA Pam 73–1.)

*h. Test reports.* See DA Pam 73–1, chapter 6.

(1) *Developmental test report.* The developmental test report (TR) is a formal document of record that reports the data and information obtained from the DT and describes the conditions that actually prevailed during test execution and data collection. A DT event may be conducted and reported by the contractor. In these cases, the contractor test plan (similar to a Government developmental DTP) must be coordinated, briefed, and agreed to by the T&E WIPT. The contractor test event must be observed by Government T&E personnel to validate the data for incorporation into the system evaluation. The developmental TR content is structured similarly to that of the DTP. (See AR 73–1, para 10–13a, and DA Pam 73–1, para 6–31.)

(2) *Operational test report.* The operational TR provides the results of a test event conducted on a system or concept that includes findings-of-fact, based on the data collected. It consists of a detailed report of test conditions and authenticated test results to include, as appropriate, detailed displays of data from the tests and testers' observations. The operational TR is completed to the level of the aggregation of data and supporting analyses as contained in the approved EDP. (See AR 73–1, para 10–13b, and DA Pam 73–1, para 6–53.)

*i. Evaluation reports.* See DA Pam 73–1, chapter 5.

(1) *System evaluation report.* As the system approaches a milestone or the FRP Decision Review, the system evaluator will produce a SER. The purpose of the SER is to advise the decision review principals and MDA concerning the adequacy of testing, the system's operational effectiveness, suitability, and survivability, as well as system safety and recommendations for future T&E and system improvements. For a MDAP, the system evaluation in support of the FRP Decision Review will use data resulting from the IOT as a major data source integrated with other credible data sources as defined in the TEMP. (See AR 73–1, para 10–15, and DA Pam 73–1, para 5–26a.)

(2) *System assessment.* System assessment (SA) reports occur at key points during the system acquisition phase, before and after each milestone decision. System assessments support the materiel release process for a system fielding or deployment. (See DA Pam 73–1, para 5–26b.)

*j. Live fire test and evaluation documentation.* See AR 73–1, paragraphs 10–14, and DA Pam 73–1, chapter 6 and appendixes I, J, and S.

(1) A LFT&E Strategy will be developed for each program designated for LFT&E. The LFT&E Strategy is approved as an integral part of the TEMP via the TEMP approval process at DOT&E.

(2) The LFT&E EDP and DTP documents, as identified in the LFT&E plan matrix of the LFT&E strategy, satisfy the DOD requirement for a Detailed T&E Plan for LFT&E.

(3) The LFT&E results are contained in the final TRs. Final TRs are provided through TEMA for the Army Test and Evaluation Executive to the DOT&E. If the DTP has been approved by the DOT&E, the Army Test and Evaluation Executive will approve the final TR for that LFT&E phase. For other LFT&E phases, the testing agency approves the report. The evaluation findings and recommendations are contained in the SER. The SER is approved by the Commander USATEC or designee and is submitted through the Army Test and Evaluation Executive to the DOT&E.

#### **4–15. Test and evaluation budget and financial considerations**

The Army RDTE appropriation funds testing accomplished for a specific system before the production decision. The PM developing system changes will fund testing of those changes using the same appropriation that funds the change development effort. The operations and maintenance, Army (OMA) funding will fund FOT&E. Funding for C4I/IT will be from either OMA or RDTE, depending on whether the system is general purpose or developmental, respectively. The PM will

determine which appropriation to use. The FOT&E for C4I/IT will be funded with OMA. The PM will develop estimates of costs associated with replacement, repair, or refurbishment of tested equipment and other resources used during testing. (See AR 73–1, chap 11.)

#### **4–16. Instrumentation considerations**

Embedded instrumentation supports the concepts of continuous life cycle deployed training, testing, prognostics, and anticipatory logistics. Consider embedded instrumentation as an integral part of the system development and T&E process. MATDEVs, CBTDEVs, and TNGDEVs will include embedded instrumentation for training, testing, and logistics in all applicable projects in accordance with the program’s capabilities-based requirements documents. PMs should regularly coordinate with PEO STRI and PM ITTS to ensure state-of-the-art embedded instrumentation technology is incorporated into their projects.

#### **4–17. Targets and threat simulator considerations**

Targets and threat simulators required to populate DT and OT test activities are essential to fully test the capabilities of developmental weapons systems. The Army maintains a large fleet of existing target and threat simulator systems, however not all potential threat or emerging threat systems are available to support testing at a given time. Target and threat simulator systems not currently in the Army’s fleet must be developed, procured, and made available to support test events. It is essential that the PM coordinate with PEO STRI and PM ITTS while developing the program’s TEMP to ensure that target and threat simulator systems required for program testing are available when required. Threat systems portrayed in T&E events are subject to an accreditation process that identified, analyzes, and documents the differences between the Defense Intelligence Agency (DIA) validated threat and the threat representation. This process is conducted in the Threat Accreditation Working Group (TAWG) which provides the threat system accreditation report (TSAR), chaired by ATEC–Threat Office. (See DA Pam 73–1, app Z and AR 381–11, chap 3.)

## **Chapter 5 Life Cycle Resource Estimates**

### **Section I**

#### **Life Cycle Cost Estimates**

##### **5–1. Life cycle cost estimates overview**

*a.* The DOD acquisition policies provide the basic framework for the development, documentation, and presentation of materiel and information systems’ life cycle cost estimates. Specifically addressed are the requirements for a program office estimate (POE), component cost analysis (CCA), independent cost estimate (ICE), economic analysis (EA), force cost estimates or other cost analyses.

*b.* Life cycle cost includes all work breakdown structure elements; all affected appropriations; and encompasses the costs, contractor and in-house effort, as well as existing assets to be used, for all cost categories. It is the total cost to the Government for a program over its full life, and includes the cost of research and development, investment in mission and support equipment (hardware and software), initial inventories, training, data, facilities, and so forth, and the operating, support, and, where applicable, demilitarization, detoxification, or long term waste storage.

*c.* This overview of cost analysis discusses the process for developing, analyzing, validating, and documenting cost estimates using analytical approaches and techniques. The process involves analyzing and estimating incremental and total resources required to support past, present, and future forces, units, systems, functions, and equipment. Cost analysis assesses the cost implications of new technology, new equipment, new force structures, or new operating or maintenance concepts. The life cycle cost estimate includes the program’s total ESOH costs, which can be significant when considering environmental issues related to acquisition programs’ fielding such as land restoration and other costs related to sustainability; HHA medical costs and lost-time avoided that are provided by USACHPPM as part of the HHAR endorsement or by request; cost impact of schedule; expected life cycle costs from potential injury or equipment damage determined as part of the AoA (the USACRC can assist in development of an appropriate methodology for a particular system); and an assessment of cost that includes estimating technical risk and uncertainty. Cost analysis determines the funds required for a given level of training or operational activity such as miles driven per year.

*d.* Cost analysis is an integral step in the selection among alternatives by the decision-maker. As a management tool, cost analysis and cost estimates are used to help decision-makers evaluate resource requirements at key management milestones and decision points. In this regard, cost analysis and the cost estimates support the PPBE process. This includes

formulating and documenting Army cost positions on programs within the POM and the budget estimate submit (BES) processes.

## **5–2. Introduction to the cost analysis process**

*a.* Cost analysis is the scientific process used to evaluate the resources required to develop, test, produce, procure, train, operate, maintain, replace or eliminate units, forces, systems, functions and equipment. The cost analysis process requires a thorough understanding of the item and its phases of evolution. Cost analysis includes the identification of assumptions and constraints, the acquisition and evaluation of relevant data, risk management, and the application of reasonable cost theories, methods, M&S, and techniques. The process includes testing of results for reasonableness and sensitivity to the assumptions. Results are usually expressed in terms of dollars and include a discussion of the quality of data, methods and results.

*b.* The cost analysis process can be applied to either a small portion of a complex item or the total item. An example is the analysis of the cost difference between single year and multi-year procurement strategies of a materiel subsystem. Cost analysis may be applied to the item's total life cycle or to a single phase of the life cycle. Additionally, cost analysis can be applied to evaluate the relative cost differences between competing alternative solutions, which may include M&S.

*c.* A cost estimate results from the cost analysis of a particular item. It is based upon specific information: a definition of the item, phase of evolution, life cycle portions costed, assumptions, approach employed, data sources, ESOH risks, and elements costed. The estimate should be sufficiently documented to allow outside reviewers to easily track the logic from the assumptions, through the methodologies, and models and simulations to the conclusion.

*d.* A POE is a life cycle cost estimate that is developed by the materiel system proponent to support specific acquisition milestone requirements. Specific documentation formats are required for the POE. The POE uses cost element definitions that are common with those used by the Director, Army Budget, and the Director, Program Analysis and Evaluation. A key document for development of the POE is the cost analysis requirements description (CARD), which includes the system description, acquisition strategy, fielding plan, and projected operations.

*e.* The DASA (CE) develops a CCA for ACAT IC and IAC programs to support specific regulatory acquisition milestone requirements. Under certain circumstances explained in the Cost Analysis Manual, a CCA may be developed for ACAT ID programs. The CARD also functions as a basic starting position for the CCA. The CCA is used to test the reasonableness of the POE and to provide a second opinion of a system's cost.

*f.* The Army Cost Position (ACP) is the Army's approved life cycle cost estimate for the materiel system. It is used for DOD milestone reviews and is the basis for Army planning, programming and budgeting. For all major programs, the Cost Review Board (CRB) develops the proposed ACP after an intensive review of both the POE and CCA or Cost Analysis IPT (CAIPT) single estimate. This proposal becomes the ACP when it is approved by the ASA (FM&C) and then is provided to the AAE. The cost analysis brief (CAB) documents the justification and the rationale for any changes from the POE and CCA to the ACP. DODI 5000.02 requires the component's cost position. The CAB satisfies this requirement for milestone reviews.

*g.* For ACAT II and III programs where the AAE is not the MDA, the POE is used as the life cycle cost estimate for milestone reviews and for APB cost section. PMs are encouraged to obtain an independent cost review of the POE before including it in the cost section of the APB.

## **5–3. Cost analysis requirements, uses, and limitations**

*a.* Cost analysis is a critical element in the Army acquisition process. It supports management decisions by quantifying the resource impact of alternative options. A quality analysis includes different acquisition strategies, hardware designs, software designs, personnel requirements, and operating and support concepts. (See the Army Cost Analysis Manual, section 1–5, Cost Analysis Requirements, Uses, and Limitations (<http://www.asafm.army.mil/ceac/ce/ce.asp>)).

*b.* The POE and CCA initially fulfill the statutory (10 USC 2434) requirements for program cost estimates for major milestone reviews. As a program matures, the POE and CCA grow in complexity and detail as more relevant, factual information is available. The true test of the utility of cost analysis is the ability to respond quickly to program turbulence caused by either internal Army changes in military priorities or external changes such as congressional direction. Army planners must have reliable, quickly available information on the logical cost consequences of program changes, extensions, or cancellations that only a prepared cost analysis community can provide. After a reprogramming decision is made, the cost analyst should document the logic used to ensure that the program is executable.

*c.* Cost analysis plays a key role in budgeting the Army's operating tempo (OPTEMPO) related training costs. The Army's implementation of the DOD visibility and management of operating and support cost (VAMOS) program is the Operating and Support Management Information System (OSMIS). DASA (CE) is responsible for the OSMIS program. The Army collects and publishes operating and support data by materiel system. DASA (CE) uses this data to infer historic materiel system OPTEMPO performance. DASA (CE) develops and reports repairable and consumable OPTEMPO costs

by ACOM for over 200 tactical systems. OPTEMPO cost factors developed by DASA (CE) incorporate the impact of major supply policy changes, such as those caused by Defense Management Review Decision (DMRD) 901 and 904c. The OSMIS cost factors are used to develop the ACOM General Purpose Forces (P2) mission budgets across the Army.

*d.* For expert support in estimating software design and development costs as well as software support and maintenance costs, the appropriate LCSEC may be consulted.

*e.* The Army uses cost analysis to—

- (1) Support decisions on program viability, structure, life cycle resource requirements, and ACAT (see table 10–1).
- (2) Evaluate the life cycle cost implications of alternative materiel system designs.
- (3) Provide credible and auditable cost estimates in support of milestone reviews throughout the acquisition and PPBE processes.

(4) Assess the financial implications of new equipment, force structures, operating/maintenance scenarios and technology.

(5) Formulate and document the Army budget positions on programs within the BES process.

(6) Determine the funds required by appropriation for a given level of readiness or OPTEMPO.

*f.* Cost analysis applies scientific and statistical methods to evaluate the likely cost of a specific, defined system in a defined future scenario. In the real world, there are multiple uncertainties relating to materiel acquisition cost. Internal uncertainties influencing cost can be traced to inadequate system definition, poor contract statements of work, overly optimistic statement of solutions to problems, poor management, and success oriented scheduling. External uncertainties include schedule and funding turbulence, contractor misunderstanding of technical complexity, contractor's future problems on other efforts adversely impacting the estimated work, and excessive (or minimal) oversight. In spite of uncertainty, the process of cost analysis is the most rigorous approach available to evaluate the cost consequences of alternatives for the decision-maker.

*g.* Cost analysis cannot—

- (1) Produce results that are more valid than input data.
- (2) Be applied without tailoring to fit the problem.
- (3) Provide relevant solutions to irrelevant questions and problems.
- (4) Predict political and non-cost impacts.
- (5) Substitute for sound judgment, management, or control.
- (6) Make final decisions.

*h.* Another useful analytical tool to support the decision making process is economic analysis. Economic analysis is the systematic objective determination of both the cost and the benefits of competing courses of action that meet the same requirement by determining the most efficient and effective utilization of resources. Economic analysis extends cost analysis to assess the benefits of the alternatives and provides a rigorous approach to problems of equal cost and unequal benefits, unequal cost and equal benefits, and unequal costs and unequal benefits. Economic analysis provides management visibility to a broad range of issues such as base closure, lease/buy decisions, and materiel system effectiveness. An AoA is an economic analysis that compares operational effectiveness (benefits) of alternatives to the costs of the alternatives.

#### **5–4. Key cost analysis interfaces**

*a.* Cost analysis plays a key role in the Army's PPBE. In the planning process, the ACP provides the most credible estimate of the system's resource requirement. In the programming phase, cost analysis and the ACP are the foundations for multiple what-if analyses providing the logical basis for the cost impact of changes in schedule, quantity, production rate dependencies, or the impact of increased technical challenges. In the budgeting phase, cost analysis responds to the problem of evaluating the impact of funding limits on the program schedule and unit costing. There has been considerable work to ensure that the cost estimating structure is directly related to the needs of the PPBE, and this work continues. There is a joint effort to assure that cost, budget and programming documents use identical definitions Armywide. In the execution phase of the PPBE process, cost analysts are called on to review Earned Value Management System (EVMS) reporting as specified by the Under Secretary of Defense's revision to DOD earned value management policy (memo dated March 7, 2005) and evaluate contract technical, schedule, and cost growth that may impact program execution. Contract performance reports (CPRs) and integrated master schedule (IMS) reports are required whenever Earned Value Management is required (in other words, compliance to ANSI/EIA–748).

*b.* The DASA (CE) cost analysts play an important role in the Army program budget committee's (PBCs) OPTEMPO subcommittee. Army flying hour rates and ground vehicle OPTEMPO cost factors are used to formulate the P2 budgets. Additionally, these OPTEMPO factors are provided to the cost analysis community for use in the development of future cost estimates.

*c.* In summary, cost analysis plays an important role in both the Army acquisition process and PPBE process by providing dependable, credible and timely estimates of the cost consequences of management decisions.

## 5-5. Procedures

AR 11-18 provides the policies and responsibilities for cost and economic analysis throughout the Army. The Army Cost Analysis Manual provides the framework for implementing the cost analysis policies set forth in AR 11-18. The Army Economic Analysis Manual provides the framework for implementing the economic analysis policies of AR 11-18.

## Section II

### Manpower Estimate

## 5-6. Applicability

Manpower estimates (MEs) are required by 10 USC 2434. Title 10 directs the Secretary of Defense to consider an estimate of the personnel required to operate, maintain, support, and provide training for a MDAP in advance of approval of entry into EMD, or production and deployment. The ME is developed for all manpower-significant programs (for example, programs with high personnel or critical skill requirements), regardless of ACAT. For detailed policy and guidance, see Under Secretary of Defense (Personnel and Readiness) (USD (P&R)) Interim Policy and Procedures for Strategic Manpower Planning and Development of Manpower Estimates, dated 10 December 2003 (<http://library.saalt.army.mil/archive/memo/2003/interim%20policy%20and%20procedures%20for%20strategic%20manpower%20planning%20and%20development%20of%20manpower%20estimates.pdf>). Enclosure 1 of the USD (P&R) interim policy provides specific guidance and format requirements for MEs.

## 5-7. Manpower estimate general provisions

*a.* The ME is the source document for determining the manpower portion of the “total costs of ownership” for acquisition systems required by E1.4 of DODD 5000.01. In addition, the ME is the only OSD-level acquisition document that addresses manpower affordability from a military end-strength and civilian full-time equivalent perspective and the only required acquisition document that addresses skill shortages.

*b.* A ME is required at Milestones B, C, and the FRP Decision Review. At Milestone C and FRP Decision Review, MEs reflect results of development tests, OTs, and FDT/Es as available.

*c.* A determination must occur for the most efficient and cost effective mix of government manpower and contract support for all systems. See AR 715-9 for additional information concerning contractors on the battlefield.

*d.* The ME addresses personnel issues and other risks that could impact system fielding.

*e.* The ME assesses the validity of a program’s manpower numbers.

*f.* MEs address whether manpower meets or exceeds objective and threshold values in the program’s capabilities document.

*g.* The MATDEV prepares a program’s manpower estimate report (MER) for Army approval by the Assistant Secretary of the Army (Manpower and Reserve Affairs) (ASA (M&RA)). The MER is staffed with the Army DCS G-3/5/7, DCS, G-4, DCS, G-8 (FD, and Program Analysis and Evaluation (PA&E)), DCS, G-1, National Guard Bureau, and ACOM offices with training, maintaining, and supportability execution responsibilities.

*h.* For DAB-level programs, the Army approved MER is forwarded to the USD (P&R). A draft MER should be approved for release at least three to six months in advance of the DAB milestone review so that the manpower estimate can be used for development of cost estimates and affordability assessments. The final MER is submitted to USD (P&R) in sufficient time to support the DAB OIPT review. Normally, three weeks prior to the OIPT review is considered sufficient.

*i.* The manpower authority for the lead DOD Component for Joint programs (ASA (M&RA) in the Army) is responsible for obtaining approval of the MER for all DOD Component manpower authorities participating in the program.

## Section III

### Analysis of Alternatives

## 5-8. General analysis of alternatives information

*a.* The AoA is conducted in accordance with DODI 5000.02 for all potential ACAT I and IA programs and by direction of the MDA for potential ACAT II and III programs. The AoA is an independent analysis that informs the MDA by determining which study alternative is most cost and operationally effective (the preferred alternative). The initial AoA is to be conducted during MSA and completed before Milestone A for the transition into Technology Development. A more mature AoA will usually be required for the Milestone B decision on whether the program should enter into EMD. The AoA will be reviewed and only updated as necessary for the Milestone C decision to enter Production and Deployment.

*b.* The purpose of the AoA is to complete an analytical comparison of the operational effectiveness, suitability, and life cycle cost of alternatives that satisfy established capability needs. Initially, the AoA process typically explores numerous

conceptual solutions with the goal of identifying the most promising options. A comprehensive and robust AoA contains the following elements:

- (1) Clearly identifies key issues.
- (2) Includes all reasonable alternatives (materiel and non-materiel) from the Army, other Services, academia, industry, or foreign governments, identifying the most feasible options.
- (3) Analysis framework that is consistent with approved organizational designs, operational concepts, and approved forces programs (current and future).
- (4) Analysis framework that is consistent with contemporary operational environment and STAR.
- (5) An appropriate spectrum of Defense Planning Guidance-compliant scenarios and operating environments in a specified timeframe(s).
- (6) Measures of effectiveness (MOE) that are relevant to identified and approved deficiencies/gaps and consistent with the CBA supporting the ICD and draft CDD/CPD.
- (7) If required, the use of accredited simulations, models and data.
- (8) Cost and operational effectiveness comparison of alternatives.
- (9) Life Cycle Cost Estimates for each alternative based on validated cost estimates.
- (10) Affordability Analysis for each alternative.
- (11) Assessment of impacts of alternatives on the institutional training base and logistics support base.
- (12) Assessment of critical technologies associated with the alternative concepts, including technology maturity, technical risk, and if necessary, technology maturation and demonstration needs.
- (13) Sensitivity assessment of the potential operational capabilities of alternatives, to include technical risk and technology maturity.

c. Part of the approval process for entrance into the MSA phase of the Defense Acquisition Management Framework depends upon an approved ICD and an approved AoA Plan for conducting an AoA for the concept documented in the ICD. The focus of the initial AoA is on refining the initial materiel approach recommended for implementation in the ICD. To achieve the best possible system solution, emphasis is placed on innovation and competition. Existing commercial item/NDI functionality and solutions drawn from a diversified range of large and small businesses will be considered. The results of the AoA provide the basis for the technology development strategy (TDS), approved by the MDA at Milestone A for potential ACAT I and IA programs. Materiel Solution Analysis ends when the MDA approves the preferred solution resulting from the AoA and approves the associated TDS.

d. The AoA presents a variety of alternatives as potential solutions to meet the need. The need is first identified during capabilities development in the functional needs analysis (FNA) and later explored through the functional solution analysis (FSA) that culminates with the analysis of materiel approaches (AMA). The Milestone A AoA, prepared during the MSA phase, provides a comparison of the early materiel approaches. As the program matures, and if conditions warrant, the MDA and OSD PA&E may direct updates to the AoA to support the Milestone B (CDD) and Milestone C (CPD) decisions. The MSA AoA is updated at Milestone B and Milestone C only if required (as determined by the MDA and PA&E). If the program enters the acquisition process at a later time, such as at Milestone B, then that later point would be when the full AoA would be conducted in order to establish the basis for program initiation. The Milestone B AoA, if required, will be prepared during the Technology Development phase.

e. The Milestone B AoA uses information on the system and KPPs as defined by the requirements analysis and the CDD. If the CBTDEV and MATDEV are on track in developing the correct program to provide the materiel solution, AoA findings will provide analytic underpinning to support a recommendation to continue further acquisition activities for the needed capability. However, an AoA is not done to specifically support the capability described in any of the capabilities documents (ICD, CDD, or CPD). If the results are unfavorable, DOD or HQDA will decide on whether to proceed with further development of the capability. Usually Milestone C AoA updates are required only when there are significant developments, such as a changed threat, a new technology development, a test issue, a program cutback, or significant changes in estimated costs.

f. Based on the wording in the acquisition decision memorandum (ADM), pertinent congressional language, and HQDA/TRADOC guidance, the independent analysis agency (usually the TRAC or a study team at a TRADOC Battle Lab or Director of Combat Developments (DCD)) conducting the AoA works (as required) with DOD, HQDA, the CBTDEV, MATDEV, AMSAA, and the DASA (CE) to develop study issues, alternatives, system performance data, cost data, and study methodology. HQDA will usually establish a Study Advisory Group (SAG) that meets to review the AoA Study Plan, emerging results, and possibly final draft products. The SAG provides advice and guidance to the study team and provides an opportunity for key reviewer involvement in the study at a time when the study team can consider and react to the key reviewer concerns.

*g.* The AoA primarily determines operational effectiveness and costs for all alternatives. Operational effectiveness analysis looks at the relative contribution each alternative makes to force effectiveness. The cost portion of the analysis generates cost estimates that quantify the resource impacts expected if the alternative materiel systems and forces gamed in the effectiveness analysis are acquired, operated, and maintained for the comparison period (usually 20 years). Costs can be presented as life cycle costs and total ownership costs (sometimes referred to as decision costs). The cost analyst develops life cycle cost estimates (LCCEs), from the materiel developer cost estimates, validated by DASA (CE). The analysis also considers logistics, training, and personnel impacts.

*h.* The AoAs illuminate the relative advantages and disadvantages of alternatives being considered by identifying sensitivities of each alternative to possible changes in key assumptions (for example, threat) or variables (selected performance capabilities, and so forth). AoAs provide insights regarding KPPs for preferred alternative(s) and indicate how these parameters contribute to increases in operational capability. Additionally, AoAs determine operational effectiveness and costs (including estimates of life cycle costs and training and logistics impacts) for all alternatives and identify opportunities for tradeoffs among performance, costs, and schedules.

*i.* The AoAs consider a full range of materiel alternatives. These alternatives may include the currently fielded system (the base case), a modified version of the current system, the Army's programmed system described in the ICD/CDD, other Services' systems (existing or programmed), non-developmental items, cooperative (allied) developmental systems, and conceptual systems.

*j.* The AoA uses MOE to determine how each study alternative's performance capabilities contribute to the force's operational effectiveness. The MOE become key measures of the warfighting value of each study alternative. The MOE also link the AoA, the APB, the CDD, the COIC, and TEMP. The AoA analyst identifies the relevant MOE (perhaps first developed in the functional area analysis/functional needs analysis (FAA/FNA) process) that quantify how well the alternatives satisfy the operational need described in the ICD and CDD. These MOE should be consistent with the MOE planned for use in the T&E process.

## **5–9. Analysis of alternative preparation**

*a.* Headquarters, DCS, G–3/5/7 in coordination with the Army Test and Evaluation Executive, DCS, G–8, and ASA (ALT), usually tasks TRADOC to perform AoAs for ACAT I and II programs. The AoA tasking should be drafted as early as possible and be consistent with developments from previous CBA and requirements analyses. HQ TRADOC (ARCIC) then tasks an independent analysis team to conduct the AoA, usually TRAC, but possibly a study team in a TRADOC Battle Lab or DCD. The CBTDEV (TRADOC Battle Lab or DCD) is responsible for conducting the remaining ACAT II and III AoAs, if required by the MDA.

*b.* The independent analysis team conducting the AoA receives direction from TRADOC ARCIC and, if formed, guidance from the HQDA SAG; or, for a joint AoA, a Joint SAG. Specific requests for significant additional or modified analytic requirements must be processed through the TRADOC ARCIC. Typically, the SAG will require the Study Leader to present the Study Plan within 90 days of issuing the AoA tasking. The SAG will also require periodic briefings on emerging study results. The SAG must approve the final AoA results before they may go before the MDA at the milestone decision event. The CBTDEV working group should help scope the AoA and expedite analysis coordination efforts. While the AoA study team participates in the CBTDEV working group, the CBTDEV working group does not have tasking authority over the independent AoA study team for ACAT I or II programs.

*c.* The AoAs for ACAT I and II programs typically take an average of 12 months to complete; however, the length of time is dependent on the issues being addressed. Therefore, analysis requirements must be projected early to ensure analysis resources are available. If the MDA does not require an AoA for an ACAT III program, the system CBTDEV must still maintain an audit trail of the analyses supporting the materiel need determination and that provided the analytic unpinning for the ICD.

## **Section IV**

### **Affordability**

#### **5–10. Affordability**

Program affordability is defined as part of the JCIDS process. All elements of life cycle cost (or total ownership cost, if available) are included in the resulting capability needs document(s). Cost goals are established in terms of thresholds and objectives to provide flexibility for program evolution and to support further CAIV studies. The MDA considers affordability at each decision point. In part, this consideration ensures that sufficient resources (funding and manpower) are programmed and budgeted to execute the program acquisition strategy.



## **5–11. Full funding**

*a.* The policy of full funding as applied to systems acquisition is derived from OMB Circular A–11, which is the Government’s official guidance on the preparation and submission of budget estimates to Congress. Presenting to Congress the full costs for an acquisition program, to include the time frame over which such acquisition is anticipated, provides Congress a better basis for authorizing/appropriating funds for that program; whether this is done through annual incremental appropriations toward the full cost of the program or with the provision of advance or multi-year funding.

*b.* The requirement for presenting the full funding for an acquisition program, that is the total cost for developing, procuring and sustaining a given system as reflected in the most recent Future Year Defense Program (FYDP), is not restricted to ACAT I or ACAT IA programs only. The requirement pertains to all acquisition programs, regardless of its ACAT, where the review forum would remain within the Army. Per DODI 5000.02, transition into EMD requires full funding, which will be programmed when a system concept and design have been selected, a PM has been assigned, requirements have been approved, and system-level development is ready to begin.

## **Chapter 6 Program Design**

### **Section I**

### **Integrated Product and Process Development/Performance Based Business Environment**

#### **6–1. Integrated product and process development**

*a.* Integrated product and process development (IPPD) is a systematic approach to the integrated, concurrent design of products and their related processes, including manufacturing and support. This approach is intended to cause the developers, from the outset, to consider all elements of the product life cycle from conception through disposal; including quality, cost, schedule, performance, supportability, ESOH related risks, and user requirements.

*b.* Integrated product and process management (IPPM) describes the Army concept for managing the system acquisition process. It is also sometimes described as IPPD in some other Service and DOD applications. The IPPM concept draws on the system’s engineering tools and overlays a management concept that encourages the use of IPTs. IPPM, as a multidisciplinary management technique, uses design tools such as modeling and simulation, teams, and best commercial practices to develop products and their related processes concurrently. The Army interacts with the contractor’s IPPD process in its role as a customer and as the IPPM manager. IPPM is key to an organized, comprehensive, and iterative approach for identifying and analyzing cost, technical and schedule risks, and instituting risk-handling options to control critical risks areas throughout the life cycle of the program.

*c.* The IPTs for implementation of the IPPM concept are established early in acquisition programs and will be the primary forum for challenging requirements and their associated costs, managing total program progress, and evaluating product quality throughout the life cycle. As a management process, an IPT incorporates all necessary disciplines and functions to integrate all activities from product concept through production and sustainment processes in order to meet cost and performance objectives within a stated timeframe. Every member of the IPT (both Government and industry) needs to work from the same information and toward the same overall program goals. Concurrent consideration of all life cycle needs is greatly enhanced through the use of interdisciplinary IPTs. Members of an IPT are empowered to make decisions for their respective organizations and keep them informed of the product and process decisions. An enhanced communications environment, where all program information is in a format available to all stakeholders in real time, is of primary importance to the effectiveness of the IPTs.

*d.* Whatever the phase of development of a program, implementing IPPM follows some basic considerations. The structure and processes for implementing an IPPM approach needs to be defined along with the activities that need to be performed and a determination made whether the Government or contractors will be performing those activities. This involves the following tasks:

- (1) Identifying all stakeholders necessary to accomplish the activities.
- (2) Forming IPTs and defining their goals, tasks, and responsibilities.
- (3) Training all stakeholders and IPT members in IPPM approach.
- (4) Defining metrics to measure progress in meeting program goals.
- (5) Establishing structure and processes to address issues such as facilities, collocation, communications, modeling and simulation, computer security, recording activities and decisions.

*e.* Refer to the AKSS and Defense Acquisition Guidebook (DAG) for further information.

## **6–2. Performance based business environment**

*a.* Performance based business environment (PBBE) describes a government/contractor relationship that capitalizes on commercial practice efficiencies to improve the military acquisition and sustainment environment. In this new environment, solicitations and contracts describe system performance requirements in a way that permits contractors greater latitude to use their own design and manufacturing ingenuity to meet needs. Additionally, suppliers will compete based on design innovations relative to performance objectives.

*b.* A significant aspect of PBBE emphasizes risk management as opposed to risk avoidance by identifying risks upfront, assessing their program impact, and placing greater reliance on a contractor's own metrics to track and manage those risk areas most critical to program success. The Government/contractor team identifies program risks and focuses its management on those risk areas most critical to program success. This approach reduces Government oversight, focuses Government assets on critical risk areas, and incorporates contractor assets into a cooperative risk management program. This environment applies to new acquisitions, modifications to existing contracts, and sustainment activities.

*c.* The following PBBE essential elements reflect characteristics that the program managers and their teams must develop and use throughout the life cycle of their programs to achieve the "PBBE Government/contractor environment."

- (1) Convey product definition and key processes expectations to industry in performance terms.
- (2) Promote life cycle systems engineering and management practices, including IPPD and support.
- (3) Increase emphasis on past performance.
- (4) Motivate process efficiency and effectiveness up and down the entire supplier base—primes, subcontractors, vendors.
- (5) Encourage life cycle risk management versus risk avoidance.
- (6) Simplify acquisition and support operating methods.

## **Section II**

### **Systems Engineering**

## **6–3. Systems engineering considerations**

*a.* Systems engineering is the interdisciplinary approach to the evolution and verification of integrated and optimized product and process designs. The objective of systems engineering is to provide a comprehensive, structured, and disciplined approach for requirements allocation and concurrent product and process development. Systems engineering is the technical basis shaping the cost, schedule, supportability, and performance objectives for the acquisition program. It is integrated into the practices and processes followed by the acquisition program management office and contractors. Recognizing the criticality of software to all acquisition programs and operational capabilities, software acquisition risks, processes, and products are highlighted and addressed as a distinct entity within systems engineering. The products of the systems engineering include Functional, Allocated, and Product Baselines that describe the inputs and outputs of the systems engineering process to include but not limited to the system level requirements, design requirements for items below system level, and description of product physical detail. Effective systems engineering practices must be integrated into and support, as a minimum, the following PMO key process areas:

- (1) Capabilities/requirements development and management.
- (2) Project technical planning.
- (3) Project technical monitoring and control.
- (4) Integrated project and team management.
- (5) Measurement and analysis.
- (6) Process and product quality assurance.
- (7) Configuration management.
- (8) Risk management.
- (9) Solicitation and contract monitoring.
- (10) Transition to operations and support.
- (11) Product validation (test and evaluation).
- (12) Product verification (track to requirements).
- (13) Product integration.
- (14) Supportability, planning, analysis, and tradeoffs.

*b.* Systems engineering is applicable to all ACAT levels including new developments, upgrades, and to modifications. All programs develop and follow a Systems Engineering Plan (SEP) to execute and manage a disciplined systems engineering process supporting the acquisition strategy adopted by the program. Army policy states that the PEO is the SEP approval authority. Broad based guidance for systems engineering and the SEP is found in the DAG. To implement this guidance, the MATDEV should:

(1) Apply the functional engineering disciplines identified in the DAG to the systems engineering process. The materiel development commands can provide matrix functional engineering support to PMs as needed.

(2) Develop memoranda of agreement (MOAs) between the PMs, and the supporting command(s) to establish the amount and types of matrix support to be provided by the command and the basis for reimbursement for that matrix support.

(3) Periodically review the system and program in a continual effort to eliminate unnecessary functions and costs while providing optimum performance. Function analysis, as defined within the Value Engineering Program methodology, should be considered in every problem solving or cost containment/reduction effort. See paragraph 6–14 for more information on value engineering.

(4) Establish a data management plan that is consistent with the system design, manufacturing, and support strategies, which is an integral part of the systems engineering process. This plan lays out the type of data and documentation (in other words, performance specifications, detailed design packages, commercial item descriptions) that will be necessary to support production, competitive procurement, maintenance and repair, recapitalization, and so forth, throughout the life cycle of the item. An assessment that assures the system is supportable and affordable from a life cycle perspective, is an entrance criterion for the PD acquisition phase. The specific requirements associated with integrating the support strategy into the system engineering process is accomplished through IPPD. Paragraph 6–11 provides more information on technical data management.

(5) Establish an integrated digital environment (IDE), using interoperability standards for data exchange, to allow every activity involved with the program to cost effectively create, store, access, manipulate, and/or exchange data digitally for all areas of systems engineering. The IDE, at a minimum, meets the data management needs of the support strategy, system engineering process, modeling and simulation activities, T&E strategy, and periodic reporting requirements. The design allows ready access to anyone with a need-to-know (as determined by the PM), a technologically “current” personal computer, and Internet access through a commercial browser. Within the IDE, PMs establish an integrated data management system that relies on existing information systems and data formats rather than DOD and contractor unique systems and formats provided they can readily meet the program’s information requirements and do not pose compatibility issues with operational DOD information systems and data. The configuration management process is supported by an automated Configuration Management/Configuration Status Accounting system. Pending the publication, and adoption by the Army for use, of an industry standard for configuration management data (for example, Electronic Industries Alliance EIA Standard 836 that is under development), AMC Standard 2549A should be used. Paragraph 6–8 provides more information on configuration management.

c. Apply the following framework to communicate systems engineering requirements from Government to industry:

(1) *Pre-award.*

(a) Use the systems engineering approach to identify the appropriate system requirements that represent the best value to the user and the Government. The acquiring agency should include systems engineering and software engineering criteria in their SOW.

(b) Ensure systems engineering and software engineering are suitably addressed in the source selection evaluation plan.

(c) Solicit each offeror to identify in their response their systems engineering and software engineering approach (skills, trade-off processes and candidate selection criteria), capabilities (training, tools, techniques), and technology building block candidates to be used in executing product designs.

(d) Solicit each offeror for methodology and tools to be employed in simulating and assessing the product design prior to building hardware and software.

(2) *Post-award.*

(a) Ensure each contractor identifies the process for generating design alternatives and the requirements allocation process.

(b) Ensure each contractor identifies decision making criteria for design trade-off (for example, life cycle costs, producibility, ESOH, and facilities considerations).

(c) Ensure each contractor identifies analysis and decision support tools (such as modeling and simulation).

(d) Use System Requirements Reviews flowed down to Software Requirements Reviews for the contractor’s presentation of the systems engineering trade-offs and results of design simulation for Government review.

(e) Use preliminary design reviews (PDRs), critical design reviews (CDRs), software architecture reviews and analysis, test and evaluation reviews, and production readiness reviews (LRIP and FRP) for the contractor’s demonstration that the proposed design meets all contractual requirements for Government review.

(f) Ensure the contractor demonstrates adequate progress on the concurrent development of processes (manufacturing and logistics support) to support the chosen design during the various reviews.

#### **6–4. Engineering and manufacturing development**

Information contained in this paragraph is not applicable to ACAT IA programs.

*a. Production engineering and planning.*

(1) Production engineering and planning (PEP) activities are an integral part of the overall systems engineering effort. At each milestone decision review (MDR), the producibility and production readiness risks should be identified and assessed.

(2) The Army OIPT reviews the necessary documentation for the MDR. The Production Readiness WIPT prepares the manufacturing and production functional area assessments for the Army OIPT. The structure/composition of this and other WIPTs is shown in table 10–5.

(3) Inadequate PEP activities can make the transition from development to production difficult and costly; often causing stretching-out of planned production quantities or reduction in planned production quantities. If PEP activities commence early in the development life cycle and continue through development, many risks associated with transitioning from development to production can be minimized prior to full-rate production.

*b. Commercial/non-developmental item application.* There is increasing use of commercial item, NDI, or modifications of either, to meet DOD weapon system needs. For modifications, the PEP activities should be tailored to the amount of development effort occurring and the intended acquisition strategy. For true commercial/NDI (item already exists, use as is, no changes), production readiness issues are normally restricted to those of production capacity, product quality, availability of sources, and design configuration control. In the more common case of modified commercial/NDI, the full gamut of PEP activities is normally applied against the modification portion of the development/production effort.

*c. Life cycle activities overview.*

(1) *Technology development acquisition phase.* Integrating PEP considerations early in the systems engineering process establishes the framework for a smooth transition from development to production. The primary production engineering efforts during the TD phase should be to identify manufacturing and producibility feasibility of design approaches, determine industrial base capability, and identify manufacturing technology barriers (such as areas of limited experience, new materials, extreme tolerances, and so forth). Trade-off studies, modeling and simulation, and manufacturing technology projects are initiated to improve manufacturing feasibility, cost effectiveness, producibility, and industrial base capability. Manufacturing and production engineers should be included as members of IPTs.

(2) *Engineering and manufacturing development.* As the design tradeoffs are explored and prototype units are built, producibility tradeoff studies continue, and manufacturing technology requirements are identified. Initial manufacturing process selection/consideration occurs concurrently with design development. As the design matures, the techniques of value analysis can be applied to eliminate functions that do not add value. Production engineering considerations should include standardizing parts; designing for manufacturing; minimizing part counts; performing “make or buy” studies; proving out the production processes, equipment, and tooling; identifying long lead items needed for prototype fabrication, LRIP, or full rate production; reducing or eliminating hazardous and/or environmentally damaging production materials; reducing cycle and assembly times; and improving process yields. The manufacturing and producibility efforts should assure that the high-risk issues have been resolved and that production facilities and tooling will be in place as required. Manufacturing and production engineers serve as members of IPTs during this phase.

(3) *Low rate initial production.* The LRIP is intended to complete manufacturing development efforts and prove-out production processes. LRIP quantities should be the minimum sufficient to provide production-configured articles for operational tests or first article test (FAT), and to establish an initial production base to permit ramping-up to full rate production. Procurement lead times, sources of supply, and the manufacturing plan are finalized during LRIP.

(4) *Full rate production and operations and support phases.* IPTs, that include manufacturing engineers, will be responsible for manufacturing process improvements and the engineering change proposals (ECPs) to carry out design enhancements or to correct recently discovered deficiencies in production items.

*d. Planning for production.*

(1) To minimize the risk associated with the transition from development to production, the MATDEV should consider a systematic PEP effort to guide IPTs in this area. To maximize the benefits, this risk reduction planning effort should commence early in the development cycle and continue throughout. The planning should address the PEP activities, including producibility of the product design, to be accomplished by the Government and contractors during the development phases of the item.

(2) This planning forms the basis for a system/product production readiness strategy to help guide the program’s risk reduction efforts. The resultant production readiness strategy should be incorporated into the overall ASR in order to address production feasibility and production risk issues.

*e. Implementation of PEP risk reduction measures.* Once the overall program PEP risk reduction measures have been identified, the IPT should prepare a contract SOW that identifies the production readiness goals, objectives, and requirements for the program. A set of measurable contractor performance metrics should also be prepared for use in evaluating the contractor’s PEP efforts and determining any fee payments. Tools that can be used by the IPTs to monitor and evaluate the contractor’s PEP progress include integrated program reviews, producibility reviews, design reviews, status reports,

and production readiness reviews (PRRs). The choice of these tools should be consistent with the type of program, contract and risk severity. Existing contractor data and information systems should be used whenever possible to participate in joint PEP activities or to monitor contractor PEP actions and results.

*f. Reviews of producibility and production readiness.*

(1) *IPT review.* The IPT should be continually monitoring the status of PEP actions throughout the development program. Manufacturing and production members of the IPT review designs for producibility concerns as well as determine or develop efficient and effective manufacturing processes. No component, subsystem, or system design should be approved or implemented until the IPT has evaluated its producibility and satisfied itself that all concerns have been addressed.

(2) *PRR.* In some cases, a more in-depth review of contractor production readiness may be needed than can be done within the confines of the IPT meetings. In such instances, MATDEVs are responsible for planning and conducting PRRs. PRRs can be used to assess Government and contractor readiness to enter production. PRRs provide for detailed reviews of Government and contractor plans, schedules, and accomplishments in preparation for the production program. The reviews should verify whether production planning and preparation is sufficiently matured, whether capabilities and capacities of facilities have been identified and developed, and that no major problems exist that would compromise the production program. PRRs should assess elements that could impact successful transition from development to production. This assessment can include design producibility and stability; ability to produce to required rates and costs; system ability to meet mission requirements; sufficiency/availability of the technical data package (TDP); vendor and subcontractor ability to meet delivery schedules and provide quality components; and availability of logistics support documents, parts, and equipment. A series of PRRs may be necessary to cover both prime contractors and key subcontractors and to identify risks early so that risk reduction actions can be instituted and monitored.

*g. Production engineering and planning support.*

(1) HQ AMC and its MSC production engineering and industrial base organizations are available upon request to provide PEP support to weapon system programs and IPTs.

(2) AMSAA also provides PEP support and consulting services. AMSAA can—

(a) Assist MATDEVs in formulating plans and evaluating system/product PEP, manufacturing feasibility, industrial base capability, and product producibility, as well as identifying production risk and risk reduction measures.

(b) Provide short-term consultative services within DA in the areas of PEP, producibility and PRR planning, problem solving, evaluation, and management.

(c) Conduct independent producibility and production readiness assessments of Army systems/products in accordance with AR 70–1.

## **6–5. Modeling and simulation**

The PMs are responsible for overseeing the planning and use of M&S for their programs throughout the acquisition process. Planning should be an inherent part of M&S, and, therefore, it must be proactive, early, continuous and regular. M&S should be part of the Systems Engineering Process and captured in the Systems Engineering Plan. It is a segment of the Systems Analysis and Control function included in the Allocated Baseline development phase. M&S activities are a result of higher level SE planning activities which in turn are linked to specific program issues/opportunities. M&S is another systems engineering tool which should be planned for and used for a specific and clearly identifiable purpose.

*a.* To facilitate M&S planning, PMs use the IPT forums to identify and address M&S issues (see para 6–1). The IPT forums promote integrated planning and lay the foundation for synchronized use of M&S that supports program acquisition. PMs ensure that there is broad participation in these IPTs by agencies with significant expertise in M&S to achieve proper coordination and problem resolution.

*b.* Effective M&S planning drives effective M&S employment. If a program's M&S planning warrants, PMs record their M&S roadmap in a simulation support plan (SSP). PMs make this determination based on the degree to which the program relies on M&S to reduce cost, minimize risk, save time, or optimize performance. The PM will then assume responsibility for developing and managing the SSP. The SSP provides sufficient detail to support the program's acquisition strategy. Preliminary M&S planning done by outside agencies, such as TRADOCs CBTDEV working groups, is taken as input and incorporated into the SSP to the extent the PM deems feasible. The PM leverages the M&S expertise of the respective agencies participating in the IPT to develop the M&S plan and shape the SSP.

*c.* The SSP serves the PM and those agencies supporting the acquisition process by communicating the program's coordinated M&S approach and needs. M&S planning information, including SSPs, should be shared among all PMs to foster greater system-of-system synchronization and efficiencies.

*d.* The SSP is updated as necessary to support the program's acquisition strategy.

*e.* The PM is the SSP approval authority during the system acquisition process.

*f.* A key tenet of the SMART concept is cross-domain collaboration on M&S efforts. The PM employs, reuses, and integrates models and simulations during EMD. M&S activities supporting system design and capabilities development should be disciplined and use the IPPD process to include stakeholders such as logisticians, cost analysts, threat analysts, testers, evaluators, and trainers early in the program life cycle. One of the largest payoffs with the SMART concept in new programs is the wide variety of analyses that can be supported if system designs and processes are digitally represented in models and simulations. More importantly, users, including Soldiers, can become an integral part of the decision support process during system and capabilities development even when physical hardware prototypes do not yet exist.

(1) The M&S technologies are applied to reduce system design, development, and fielding times; to assess logistics support, training, and fielding concepts; to reduce total ownership costs and to perform cost/performance tradeoffs; to assess and mitigate technical risks; and to aid in threat assessment and mission area analysis.

(2) The M&S may reduce development costs by allowing the Government and contractors to make engineering decisions based on validated and accredited models and simulations by reducing the amount of manpower intensive and costly testing to be conducted or by focusing the testing to specific areas. Once capabilities have been implemented, test data is used to correlate simulation results to ensure that functions were implemented correctly in the system and to update the associated models for future simulations and analyses.

*g.* For those programs that are well into the life cycle based on a traditional hardware prototype approach, the question becomes one of evaluating how much of the system will need to be represented digitally to achieve the desired upgrade. If it would not be cost-effective to develop digital representations, the answer may be to continue to pursue a more conventional acquisition strategy. If the traditional acquisition program is part of an evolutionary acquisition, adopting a M&S-based strategy would mean developing the hooks to support collaborative simulation-based acquisition of future increments. For new start programs, a M&S approach means beginning collaborative M&S planning early and adopting a simulation-based acquisition strategy.

*h.* The SMART Guidelines provide a starting point for the PM to explore opportunities to exploit and understand the benefits of modeling and simulations and to understand the challenges, resource requirements, and levels of effort associated with using models and simulations in their program.

*i.* A SSP is a “roadmap” that lays out how M&S can support the overall development of a concept or a system. The roadmap or plan depicts the “how”, “when” and “which” modeling and simulations tools are integrated, utilized and transitioned in the course of concept exploration and system development. When a PM decides to develop a SSP, it is maintained throughout the acquisition process. The PM should continue development of an SSP originating from TRADOC or an ATD/JCTD when available.

*j.* As the system design matures, the SSP should be updated to reflect how models and simulations will be used to support acquisition; logistics; RAM; HSI; training; testing; interoperability; lethality; survivability; cost; operational effectiveness assessments; and manufacturing and production.

*k.* A variety of M&S tools support systems engineering. CAD/computer aided manufacturing (CAM) models produce designs that can be electronically transmitted to the shop floor, resulting in fewer manufacturing errors. Factory M&S tools can support planning and analyses for facilities and equipment and help determine production flows to meet planned production rates in support of both design and production planning. If not already accomplished, the program office should utilize simulation results to substantiate achievement of rate production and identify required facilitation. CAIV analysis is performed early in the design phase to optimize performance for a given cost. Cost models incorporate data and results from engineering models and simulations and specifications and measured performance of actual LRIP hardware to generate cost estimates and support cost/performance analyses. Human interactive simulations support training, development of tactics and doctrine, and continued refinement of human-machine interfaces.

*l.* Design and engineering activities will result in a detailed design of the system, including definition of production and support processes. Beginning in the TD phase, the program office should be prepared to maintain or acquire those models and simulations that will be needed for continued support of the weapon system during its life cycle. The PM also needs to consider how to make authoritative system representations (descriptions) and models of the system available to others outside the program office that may have a need to use them.

*m.* Due to the specialized nature of the various RDECs, often the best solution for an integrated M&S approach is a federation of simulations across multiple agencies. This approach allows experts in technical fields to interoperate with their specialized simulations for the representation of subset technologies or additional system representations in a force effectiveness study. These geographically distributed architectures may be demanding to execute, but can offer another opportunity to bring valid and reusable simulations to bear on key program issues.

*n.* During the program life cycle, the SSP also describes how M&S supports T&E and training processes. While there can be no substitute for live testing and training, the same digital models used to assess system performance during system design can be properly accredited and leveraged to support T&E or training simulations. The same models used to assess a system design for maintenance and supportability can be leveraged to provide training tools for mechanics and other

system maintenance personnel. PMs need to consider how models and simulations used in system design can be used to address testing, evaluations, and training requirements. Proper verification, validation, and accreditation procedures must be followed at all times in accordance with DA Pam 5–11.

*o.* Threat models and simulations reuse—

(1) Because many threats are common to multiple programs, an attempt should be made to reuse threat models and simulations. Threat representation reuse is the identification and use of threat data, models, or simulations in a way that reduces duplication of previous, current, or planned efforts.

(2) The PM works with the threat community to promote Threat Representation Reuse. This may include coordination with the following organizations:

*(a)* The DCS, G–2 (DAMI–FIT) is the HQDA level coordinator for threat support. For ACAT I and II programs, more diverse and complex threat support may be needed and the appropriate threat integration staff officer (TISO) from DCS G–2 may be assigned.

*(b)* For ACAT III and AMC technology programs (including ATDs and JCTDs), AMC DCS, G–2 is the ACOM-level coordinator for threat support. Where necessary, the ACOM or HQDA establishes threat steering groups (TSGs), in accordance with AR 381–11. The TSG is a working group of combat and materiel developers, testers, evaluators, and intelligence community representatives that the PM can use as a resource.

*(c)* PM ITTS, under PEO STRI, is the ASA (ALT) organization for planning, programming, and executing threat simulator/simulation developments in support of Army developmental activities. These responsibilities are assigned to the Threat Systems Management Office (TSMO).

*(d)* The National Ground Intelligence Center (NGIC) is the Army threat data authority in accordance with AR 381–11 and is the Defense Intelligence Agency’s (DIA) Executive Agent for the Defense Intelligence Modeling and Simulation Resource Repository (DIMSRR).

*(e)* The Missile and Space Intelligence Center (MSIC) along with the National Air Intelligence Center (NAIC) act as the responsible agencies for Army threat data for tactical ballistic missiles, aircraft, cruise missiles, helicopter, and other air-breathing airborne threats.

*(f)* The TRADOC DCS for Intelligence (DCSINT) is responsible for threat application in the development of appropriate scenarios and vignettes for concepts development, requirements analysis, AoAs, other analytic studies, and threat support to testing. Threat application includes the use of DOD Intelligence Production Program (DODIPP) documents to produce a valid portrayal of threat activities and capabilities in the context of a scenario or vignette.

(3) A PM’s first point of contact for threat information is the AMC MSC FIO or SIO, in accordance with AMC Pam 381–1. AMC DCSINT FIOs/SIOs are the liaison between the PM and the relevant DIA Production Center and provide assistance in preparing threat portions of all program documents including the STAR. AMC DCSINT FIOs/SIOs are the liaison between the technology program manager (ATO manager, ATD managers, and JCTD managers) and the relevant DIA Production Center. The FIOs/SIOs provide and coordinate all threat documentation for technology programs.

*(a)* If the PM does not have an SIO/FIO, contact the AMC DCSINT for assignment of an appropriate SIO/FIO. Any issues between the PM and the SIO/FIO will be brought to the attention of AMC DCSINT.

*(b)* The FIO/SIO uses the TSGs, the NGIC DIMSRR, PM ITTS, TRADOC DCSINT and other intelligence community resources to identify existing threat representations for the PM.

*(c)* The FIO/SIO, in accordance with AR 381–11, coordinates with appropriate threat organizations to provide authoritative threat data to contractors, organizations or agencies selected by the PM to develop threat M&S.

## **6–6. Quality**

*a. Introduction.* Army acquisition activities should plan and carry out a total life cycle quality program in accordance with AR 702–11 with particular emphasis on the acquisition and support processes. All services provided and products designed, developed, purchased, produced, stored, distributed, operated, and maintained by or for the Department of Army, should meet quality requirements, mission and operational demands, and achieve customer satisfaction.

*b. Contract clauses.* Army contracts will reference the FAR and DFARS clauses that require contractors to have an effective and efficient quality assurance program, for example FAR Part 46, DFARS Part 246, and FAR 52.246. All contracts will reflect and retain the Government’s right to inspect, accept, and reject products, supplies and services, and to disapprove a contractor’s quality system if it fails to meet the contract requirements.

*c. Performance based requirement.* The DOD acquisition activities may be “detailed” item specifications or “performance based” system requirements. The following key policies implement focus on performance based requirements:

(1) Whenever possible, performance based specifications, descriptions, and non-government standards will be used instead of government detailed specifications.

*Note.* FMS contracts can use “detailed military specifications” without a waiver, if the FMS country desires.

(2) Solicitations and contracts should rely on performance-based requirements wherever possible. This applies to processes of ANY source whether from a Military Standard, industry standard, company process, locally prepared technical document, system specification, solicitation or other contract document. However, when criticality, complexity, dollar value, or past history problems dictate, compliance with known Higher Level Quality Requirements, such as ISO/AS9001 should be required to minimize the Government's risk (reference FAR 52.246.11 and 46.202-4). AS9100 contains additional requirements beyond ISO 9001 and is preferable for most complex systems.

(3) Contractors under an existing contract as well as those responding to new solicitations can propose changes to adopt commercial versus military standards. These changes may address alternatives to lot acceptance sampling to include statistical process control (SPC). Government Quality Assurance personnel will review these proposals and recommendations will be forwarded to the procuring contracting officer (PCO).

(4) Specification Preparing Activities should incorporate into the contract (by way of the Technical Data Package List, quality assurance provisions (QAP), drawing, or performance specification) sampling requirements such as MIL-STD-1916, American National Standards Institute (ANSI)/American Society for Quality Control (ASQC) Z1.9, Z1.4 or zero sampling plans so the Government can appropriately manage the risk related to the item being procured during the inspection process.

*d. Post-contract award.* Following contract award, Army contracting activities are authorized to grant appropriate benefits to contractors who have been recognized for the effectiveness of their quality system through programs such as ISO/AS9001 certification, Baldrige recipient, Defense Contract Management Agency (DCMA) programs, and so forth. On a case-by-case basis, contracting activities should manage risk and business transformation actions. Contractor benefits such as reduction or elimination of FAT requirements, Gage design review/approval for major/minor characteristics, reduction or elimination of inspection/tests, and reduced Government oversight and reporting requirements may be granted on exceptional previous production experience/past known quality history. Data for making such decisions should reside within the Past Performance Information Retrieval Service database (<http://www.ppirs.gov/ppirs-sr/ppirssr.htm>).

*e. Quality program requirements.* In order to hold contractors accountable for the quality of their design, development, production, and maintenance efforts, MATDEVs and buying commands should, in cooperation with the administering contracting office:

(1) Include in all contracts, quantitative and definitive quality based performance requirements, tailored to meet the needs of each acquisition.

(2) Ensure early interface with DCMA personnel as part of the pre-award conferences, post award conferences, Quality Assurance Letters of Instruction, FATs, and other ongoing QA contract activities to identify areas for focus and attention in monitoring and reporting of the contractor's progress in achieving contractual quality requirements.

(3) Report significant quality issues (for example, product quality deficiency reports (PQDRs)) per AR 702-7 and AR 702-7-1 (an electronic deficiency report is available at <https://aeps.ria.army.mil/edrs/publicqdrentry.cfm>). Quality Assurance personnel will notify the MDA or the PCO as part of the investigation and corrective action processes.

(4) Coordinate significant actions, as appropriate, with industry, DCMA, using activities, and depots.

(5) Although the specific quality management system/program selected by the contractor should not be mandated by the Government, it should be documented, identify inspection points, have provisions for and descriptions of relevant data to be collected and provided, and it should include procedures for corrective action and configuration management. It should also address provisions for the control of major contractors/suppliers and should also be available for Government review at any time.

(6) With the emphasis on compliance with DOD/OSHA and the Environmental Protection Agency (EPA) requirements, the contractor's quality/manufacturing program should minimize the impact of corrosion/material deterioration on the Soldier and reduce the environmental risk to those who manufacture the product. Doing so will increase readiness and reduce operating and maintenance cost. This requires that materiel procured, stored and fielded incorporate corrosion prevention and control (CPC) through effective design practices, material selection, protective finishes, production processes, packaging, storage environments, and maintenance procedures.

*f. Source selection.* The FAR requires that contractor past performance be a significant source selection factor for most major contract awards (see FAR Part 15.304(c)). The AMC Source Selection Resource Center ([http://www.amc.army.mil/amc/rda/rda-ap/ssrc/fr\\_sll.htm](http://www.amc.army.mil/amc/rda/rda-ap/ssrc/fr_sll.htm)) provides approaches for considering contractors' quality history in source selection. FAR Part 42.15 and its supplements describe the requirements for maintaining data on contractor performance. Data for making such decisions should reside within the Past Performance Information Retrieval Service database (<http://www.ppirs.gov/ppirs-sr/ppirssr.htm>).

*g. Oversight.* The FAR stipulates that contractors be responsible for the quality of their products and services. Army activities must assure that materiel conforms to quality, performance, safety, reliability, and maintainability requirements of the contract. Based upon QA personnel's input/recommendation, the MATDEV or buying activities/PCO, in cooperation with the administering contracting office, should adjust Government oversight and/or production acceptance testing



requirements commensurate with contractors' demonstrated performance. Based upon Quality Assurance personnel's input/recommendations, the MATDEV or buying activity should assess contractor progress/performance and allocate oversight resources in accordance with technical risk. Technical risk factors which determine oversight intensity include: lack of effective corrective action; new designs and changes in management; equipment or facilities that would warrant a FAT or increased oversight; progress of the development effort in accordance with program milestones, test results, quality of delivered products and services; adherence to schedule; effectiveness of process controls and internal audits; control of vendor-supplied material; and the results of contractor efforts to improve quality and productivity through measurement of previously established quality assurance goals. Field results, PQDR activity, past performance/quality history, and validated contractor data should be primary factors in determining oversight requirements.

(1) Early coordination and interface between the DCMA and the buying/acquisition office Quality Assurance personnel is critical. Meetings, e-mails and other forms of official contact should help to ensure adequate support and ultimate achievement of the quality requirements.

(2) The MATDEVs may assign on-site technical representatives to contractor facilities to facilitate the design, development, and production of critical programs. The DFARS Subpart 242.74 prohibits technical representatives from performing Contract Administration Services functions. When technical representatives establish on-site residency, the MATDEV and Defense Contract Management Agency Chief should sign a MOA to clarify their respective roles.

*h. Corrective action.* MATDEVs and buying activities should operate a product deficiency reporting and corrective action (CA) system in accordance with the Army centralized database per AR 702-7 and AR 702-7-1. The closed-loop CA system requires analysis of quality performance data and the effects of quality improvements. This CA system should include problem identification, root cause analysis, problem correction, demonstration of corrective action effectiveness, correction of like-items not meeting quality requirements, correction of problems at vendors, problem prevention, and require design changes for repeat problems. The Army may reject or require the correction of material or services that do not conform to contractual requirements. This right is subject to contractual provisions regarding inspection and acceptance (see ANSI/ASQC Q90 Series) and/or the warranty clause stated in the contract.

*i. North Atlantic Treaty Organization/International logistics quality program elements.* The Army activities conducting North Atlantic Treaty Organization (NATO)/International military operations should include requirements to—

(1) Perform quality assurance services on NATO/International military sales and ensure conformance to technical and quality requirements on the same.

(2) In accordance with the governing NATO Standardization Agreements, specify NATO allied quality assurance publications (AQAP) and NATO allied reliability and maintainability publications (ARMP) requirements in contracts awarded to other NATO countries. Delegate QA services to the host government whenever satisfactory services are available.

*j. Commercial quality standards.*

(1) The DOD policy emphasizes that the contractor is responsible for determining the adequacy of quality practices/standards and for ensuring that their products/services meet military requirements. DOD will recognize supplier quality programs that meet Government needs whether they are modeled on military, national, or international quality system standards. DOD and industry use of quality system standards and the related practices need to be flexible and efficient. The intent is to use improved process control and product quality to lower cost by endorsing a single quality system in contractor facilities. Single process initiative as previously described above offers an excellent opportunity to achieve these objectives at reduced cost both to the supplier and customer.

(2) The DOD practices must take full advantage of available standards (in other words, commercial standards, internal, government, and so forth) and be more innovative in the approaches taken to achieve quality requirements. Therefore, in RFPs, offerors should be encouraged to adopt appropriate standards as needed to meet the quality requirements in the contract. Solicitations should not infer or contain statements that imply that the Government requires or imposes a requirement for registration/certification and any attendant cost associated with use of any ISO/ANSI/Society of American Engineers (SAE) quality standards. While registration/certification to quality standards is not required, the Army should give due consideration to such recognition during source selection, and offerors are encouraged to provide such information with their proposals.

*k. Warranties.* Army Regulation 700-139 prescribes policies and assigns responsibilities for the management and execution of the Army warranty program, including the responsibilities of MATDEVs. It specifies the management controls applicable to the warranty program, emphasizes the responsibility of acquisition organizations to determine the cost effectiveness of warranties, and requires a management control evaluation checklist for the cost-effectiveness determination for each warranty, excluding commercial and trade practice warranties. Report Warranty Claim actions in accordance with AR 702-7 and AR 702-7-1 (an electronic deficiency report is available at <https://aeps.ria.army.mil/edrs/public-qdentry.cfm>). The Federal Acquisition Regulation (FAR 46.703) requires the contracting officer to consider cost, among other factors, in determining whether a warranty is appropriate for a specific acquisition.

## 6–7. Reliability, availability, and maintainability

### a. Introduction.

(1) *Availability.* Availability is a readiness parameter that is a measure of the degree to which a system is either operating or is capable of operating at any time when used in its typical operational and support environment. Normally, it is most sensitive to the responsiveness of the logistics support system and the system's op-tempo. System reliability and maintainability, on the other hand, are affected most by the system design and the levels of functionality required during a typical scenario (for example, 24 hour, 96 hour, or 30 day mission). Because the MATDEV has such a principal role in the factors that dominate reliability and maintainability (R&M) and such limited control over the factors that dominate availability, this section is focused on R&M. In recognition of this, both AR 71–9 and AR 70–1 specifically address R&M and not RAM.

(2) *Reliability and maintainability.* Paragraph 6–7 contains background material on R&M requirements and procedural guidance for managing the development and production of Army materiel systems to meet these requirements. It applies to all active Army elements having responsibility for the development, acquisition, and support of Army materiel. The paragraphs below cover R&M Requirements, R&M Management, R&M Engineering and Design, R&M Testing, and R&M and Assessment IPT procedures.

b. *Reliability and maintainability requirements.* The R&M requirements are developed in accordance with AR 71–9. This R&M requirements section is provided as background only. The CBTDEV first determines whether quantitative operational R&M requirements are appropriate and applicable for each development, commercial/NDI, and modification program (in other words, if quantitative operational R&M requirements will be included in the capabilities document). When the CBTDEV determines R&M requirements are applicable and appropriate to a program, these requirements are developed like all other requirements; using the CBTDEV working group/IPT process. The R&M requirements provide the CBTDEV's best estimate of what is required to meet the user's effectiveness, suitability, and survivability needs but should also reflect what the MATDEV deems affordable and technically achievable within program funding, risk, and time constraints. Three elements are required for an appropriately defined R&M requirement. A change to any of these three elements is a change to the basic requirement and requires appropriate coordination and approval. The three elements are:

(1) The parameters and their numerical values. These are reflected in the capabilities document with supporting rationale. To provide an audit trail, the CBTDEV documents the R&M Analysis supporting the R&M requirements.

(2) The operational mode summary/mission profile (OMS/MP). The OMS/MP describes for both wartime and peacetime, the individual missions and mix thereof, which the system is required to perform and the conditions (climate, terrain, battlefield environment, and so forth) under which the missions are to be performed.

(3) The failure definition and scoring criteria (FDSC). The FDSC defines the required functionality and allowable levels of degradation (in other words, what constitutes a reliability failure) and establishes a framework for classifying and charging test incidents. FDSCs should not use partial failures or criticality factors. The FDSC is a living document that may mature as the program progresses and the system configuration and operation evolves.

c. *Reliability and maintainability management.* The MATDEV, in coordination with the CBTDEV, is responsible for planning and managing the R&M program and for establishing and overseeing contracts that result in reliable and maintainable systems. The MATDEV should keep all applicable R&M organizations informed of program activities. The MATDEV should assess the potential impact of R&M on operations and support (O&S) cost and the comparative risk associated with the various alternative concepts to achieve R&M requirements. Reliability centered maintenance (RCM) techniques are recommended to coordinate maintainability design efforts with maintenance planning. Acquisition and program planning should include early investment in R&M engineering tasks to avoid later cost and/or schedule delays. R&M planning should be documented in a reliability program plan (RPP). The RPP should encompass R&M program requirements, program tasks, reliability growth expectations, modeling and simulation, contract provisions, test plans, and resources necessary to support these plans. It should also include plans for contractor reviews; data collection; failure reporting, analysis, and corrective actions; failure review boards; testing and feedback mechanisms as necessary to provide insight into design, development, and supportability progress, surveillance and control. Using the RPP, the MATDEV should keep the status of R&M development visible throughout the program.

(1) *Technical requirements.* The MATDEV should derive technical reliability thresholds and objectives from the operational requirements. These technical requirements are used as the minimum acceptable reliability values in the contract and should normally reflect only the hardware and software associated with the contractor furnished equipment (CFE) and government furnished equipment (GFE). Where appropriate, both the expected shelf-life of the system and the shelf-life environment should be accounted for in requirements for design life. Because technical reliability requirements are often used as the basis for test planning, the MATDEV should establish the technical objectives sufficiently greater than the technical threshold to preclude unnecessary escalation of test costs. Before contracts are finalized, the MATDEV should coordinate contract R&M requirements with the CBTDEV, matrix support elements, and independent evaluators. Both

technical and operational R&M requirements are to be demonstrated with high statistical confidence. High confidence is usually considered to be the 80 percent level; however, tailoring based on test cost or mission criticality is encouraged and the chosen confidence/risk value should be reflected in the TEMP.

(2) *Source selection.* The MATDEV should ensure that source selection evaluation factors balance R&M, development and production costs, schedule, technical performance, supportability, O&S cost and other principal factors in order to ensure that the fielded system provides the best value response to the established need. Integral to the solicitation process, the MATDEV should consider the following R&M factors:

- (a) The design approach to achieve R&M requirements.
- (b) Commitment to continuous process improvement.
- (c) Responsiveness to R&M tasks and reliability growth plans.
- (d) Proposed risk reduction techniques.
- (e) Responsiveness to R&M/O&S cost warranties.
- (f) Past performance in designing and producing reliable and easily maintainable systems.
- (g) Proposed innovative design features that enhance R&M.
- (h) Proposed methods for identifying failure mechanisms/modes.
- (i) Proposed stress analyses (vibration/shock, temperature, humidity, and voltage).
- (j) Environmental stress screening.

(3) *Contracts.* Solicitations and contracts should provide the MATDEV with visibility into system development plans and progress so as to assure that systems are designed to meet R&M requirements, that R&M performance can be effectively tested, and that compliance with requirements can be evaluated. When establishing system specifications for contracting purposes, the MATDEV may establish separate requirements for critical functions or for subsystems which are high-risk, safety critical, or which have a high repair/replacement cost. In design contracts, the MATDEV should encourage early investment in robust design, physics of failure, modeling and simulation, manufacturing and quality, as these activities can have a positive impact on end product reliability. In production contracts, the MATDEV should encourage the use of statistical process controls and other variability reduction techniques. This will have general payoff in reliability enhancement, but should be of special concern in processes, operations, parameters, and characteristics that are critical, special, or major. The MATDEV should coordinate with the contractor to ensure appropriate consideration is given to the following factors in program planning:

- (a) Failure modes, effects and criticality analysis (FMECA).
- (b) A Test, Analyze, and Fix process.
- (c) Use of IPTs to independently assess and monitor the growth process.
- (d) System level testing to confirm achievement of interim and final R&M requirements.
- (e) A closed loop, Failure Reporting/Analysis and Corrective Action System (FRACAS).
- (f) Accelerated growth testing/testing at stress conditions higher than normal to precipitate failures at a faster rate.

(4) *Reliability growth.* Reliability Growth Management, MIL-HDBK-189, provides an effective tool for planning and evaluating system reliability and an effective baseline against which actual growth can be managed. However, when substantial reliability growth is necessary to meet reliability requirements, there is high risk to program cost and schedule. Demonstration of a high fraction of reliability requirement (for example, 75 percent) prior to entry into EMD reduces this risk and provides a more achievable path to program success. The MATDEV is encouraged to apply reliability growth management methodology on all programs at the system level and, whenever practical, at the subsystem and major component level. The MATDEV should employ reliability growth planning prior to entry into EMD. Reliability growth plans are provided to the independent evaluator for review and comment. These plans should be applied and updated throughout Pre-Systems Acquisition, EMD, and PD acquisition phases. Planning for and execution of reliability growth improvement efforts should cease only when the production status or system R&M performance dictates that such efforts no longer have the potential to cost effectively improve system R&M performance or reduce system O&S cost. Whenever possible, system reliability growth curves should be developed based on realistic growth rates for similar systems and should support demonstration of reliability parameters with high confidence. These curves can be based on subsystem as well as system level test data. Intermediate program thresholds and objectives should also be developed from these curves and used to measure progress in meeting reliability requirements. The MATDEV should schedule test time and resources to achieve reliability growth and to validate the correction of deficiencies and defects found during testing. Programs should plan to demonstrate the capability requirements outlined in the CPD with high statistical confidence in test by the time of the Milestone C decision. To the maximum degree possible, the MATDEV should ensure the correction of the underlying causes of test incidents. This includes:

(a) Coordinating with an appropriate agent to correct or minimize the impact of problems that do not fall under the MATDEVs responsibility. Coordination can be with an appropriate interoperable system PM when the problem cannot be completely resolved within the MATDEVs own span of control; with CBTDEVs for changes to tactics, doctrine, and

system operating procedures; with testers for problems caused by inappropriate test conditions; and with other agents as appropriate.

(b) Validating the acceptability of the corrective action. The MATDEV, in coordination with the independent evaluator, should plan for the retesting necessary to fully validate the effectiveness of corrective actions and should provide those results to the R&M Assessment IPT.

(5) *Overhaul*. When appropriate and in accordance with AR 70–1, the MATDEV should establish overhaul schedules and procedures to restore equipment reliability to required levels and to extend a system’s useful life. Overhauls should be conducted based on RCM concepts and methods. The MATDEV should include reliability provisions in revisions to existing overhaul standards and depot maintenance work requirements and should implement an assessment program to measure the performance of the overhauled equipment by utilizing data from field tests or routine exercises. The MATDEV should continuously assess the performance of developed and fielded systems to identify opportunities for system R&M improvements, either through capability enhancement or through support burden and O&S cost reduction. When opportunities for improvement are found, the MATDEV should utilize Value Engineering or other appropriate means to incorporate the improvement.

(6) *Audit*. Throughout the materiel life cycle, the MATDEV should maintain a historical audit trail of R&M development that should include, but not be limited to:

(a) The R&M requirements, to include the FDSC and OMS/MP.

(b) The R&M planning documentation, current and historical growth curves, and contractual R&M provisions.

(c) Test data (to include type of test, system configuration, test conditions, test length, failures, data analysis, problems, root-cause failure analysis, and corrective actions).

(d) The R&M status at key points in development, production and field operations.

(e) The R&M improvements.

d. *Reliability and maintainability engineering and design*. The MATDEV should address R&M as an integral part of system reviews and audits. Reviews should utilize a system engineering approach and include all disciplines that have an impact on performance and supportability (including Army depot and field maintenance personnel) during the life cycle. The review objectives should be to: determine achievement of intermediate reliability growth thresholds, bring management attention to identified deficiencies, manage improvement actions, and determine if tasks are being accomplished as scheduled.

(1) *Physics of failure*. Physics of failure (PoF) is a proactive approach for designing reliability into a system. Although currently applicable principally to electronic component and mechanical designs, PoF methodology models failure mechanisms, design alternatives and environmental stresses to give designers insight into how, where, and under what condition products are expected to fail. The PoF design methodology establishes a scientific basis for evaluating the reliability of alternative materials, structures, and electronic technologies and allows designers to identify and overcome potential design imperfections early. The MATDEV should actively solicit the use of PoF methodologies in design and development. Effective application of PoF methodology may:

(a) Reduce the need for reliability testing by achieving higher design reliability.

(b) Reduce the need for costly fixes and upgrades.

(c) Reduce system O&S costs.

(d) Allow for more effective fixes and maintenance actions when failures do occur, due to the increased knowledge of inherent failure mechanisms.

(2) *Design maturity*. Design maturity is an objective in each development program. For early design maturity, MATDEVs should encourage use of:

(a) Computer-aided R&M design (for example, vibration/thermal analysis and failure mechanism analysis), optimization, and simulation programs when feasible.

(b) Component level R&M testing (hardware and software) well before integration into system prototypes, early system level R&M testing, and accelerated life testing. The MATDEV should fund for test items (components through systems) and operating time throughout the acquisition process.

(c) Analyses of root cause failure mechanisms during development. Maximum use should be made of computer design tools available for this purpose.

(3) *Testability*. The MATDEV should assure systems are designed so R&M requirements can be effectively tested and evaluated. When practical, the MATDEV (in coordination with Government test activities) should consider the requirement for system designs to include integral test and data collection capabilities. These capabilities are in addition to the built in test (BIT) capabilities provided in support of system maintenance and include the spectrum of stimulators, data loading devices, data collection devices, detectors, and other means to create the necessary environments and collect the resulting data. System development and T&E personnel determine whether to purchase or develop targets, large-scale instrumentation systems, and surrogate interoperability systems. Both the developmental and operational test communities

should be an integral part of this planning. Before use in system level government tests, the MATDEV should validate that drivers, stimulators and other instrumentation are fully functional and compatible with the system. Testability requires up-front planning to:

- (a) Create the technical and realistic operational environments necessary to exercise the system fully.
- (b) Detect failures of the system to accomplish its intended mission.
- (c) Collect adequate failure data to support fault diagnosis and corrective action.

(4) *Technical data packages.* The MATDEV should ensure R&M requirements are integrated into the TDP prior to being procured by the Government. This should include system-level and critical lower-level WBS elements (see MIL-STD-881), along with related requirements, screening profiles and tests. These requirements and tests should be in sufficient detail to ensure that products satisfy R&M requirements and quality assurance provisions. When contractor TDPs are utilized, they must include sufficient data to ensure R&M requirements are maintained and not degraded by changes made.

*e. Reliability and maintainability testing.* The purpose of R&M testing is to ensure an effective assessment of system R&M performance in accordance with the FDSC and OMS/MP. See AR 73-1 and DA Pam 73-1 for detailed R&M test and evaluation guidance. Testing outlined in the TEMP is used to determine progress toward achieving R&M requirements. Operational and developmental testing to support estimation of R&M performance against requirements should replicate the field environment to the degree feasible. System and software functions should be exercised to the levels and in the proportions described in the OMS/MP. The SEPs are written by the Independent Evaluator and should be staffed with the system IPT members. Unless specifically excluded in the approved program documentation, assessment of R&M performance in accordance with the FDSC should be an objective in every system level test (technical, operational, and production). The R&M IPT should score any data used for evaluation of R&M performance against requirements. Tests should be designed to be of sufficient length that system reliability requirements can be demonstrated with high statistical confidence. Systems reliability growth requirements should also be a consideration when determining test length. Tradeoff analyses should be performed to allow for the accumulation of the maximum number of total operating hours during the test window, and ensure that a sufficient number of hours are accumulated on each test unit. Field and chamber test conditions should represent, to the maximum degree possible, all conditions that are anticipated in the field wartime environment. Free and timely exchange of R&M data within Government agencies is encouraged in order to make maximum value of collected data.

*f. Reliability and maintainability integrated process teams.*

(1) *Reliability and maintainability IPT purpose.* The purpose of an R&M IPT is to review, classify, and charge R&M data from system level development and operational tests. All data from system level R&M testing which record degradation from anticipated system performance should be scored in accordance with the FDSC. Participation at an R&M IPT should not constrain the independent assessment of test data. Its objective is to ensure there is a full understanding of the data and the circumstances surrounding its generation and to ensure there is a clear audit among the independent estimates of R&M performance. The principal R&M IPT participants are the MATDEV, CBTDEV, TNGDEV, and independent evaluator. The tester (developmental or operational, as applicable) should attend in an advisory capacity. The independent evaluator annotates in the TEMP those tests for which he will serve as chair for R&M IPT conferences. The MATDEV chairs all other R&M IPTs not so designated by the independent evaluator. The chair of the R&M IPT is responsible for: administrative requirements including arrangements for meetings, distribution of R&M IPT data, and preparation of R&M IPT minutes; and conduct of the meeting in accordance with established procedures. Prior to the first R&M IPT, it is recommended that the chairperson coordinate with participating organizations to:

- (a) Establish the membership and the format of the R&M IPT.
- (b) Review and establish a common understanding of system requirements and the FDSC.
- (c) Identify a single voting member from each principal organization with authority to speak for that agency.

(2) *Reliability and maintainability IPT conduct.* The R&M IPTs should be held periodically during system level testing and a final R&M IPT should be held at the conclusion of each test. When possible, R&M IPT proceedings should be conducted via electronic means (in other words, e-mail, teleconference, and video teleconference) versus face-to-face meetings. For a R&M IPT to be official, at least two of the principal R&M IPT participants should be represented or should submit scores to the chair, and decisions should be through majority vote of the designated principal R&M IPT spokespersons. In cases where majority opinion does not exist, the independent evaluator will make the final determination of incident scoring (categorization/chargeability). Differing opinions should be documented in the minutes. At least 2 weeks before each R&M IPT, the chair should distribute all incident reports and maintenance summaries to the IPT members.

(3) *Scoring.* All test incidents should be scored using the approved FDSC. Scoring should take into account deviations from the OMS/MP or test conduct atypical of that expected in the field. Test incident reports should provide the necessary information for the R&M IPT to charge and classify the R&M merits of the incident. However, the tester should provide additional explanations and background information (for example test conditions, maintenance actions, failure analysis,

and so forth) as needed by the principal R&M IPT participants to score incidents. By law (10 USC 2399), system contractor personnel will not attend or be directly involved as members or observers in any R&M IPT or assessment IPT which addresses data intended to support evaluation (or assessment) of their system's operational R&M parameters. (See the para 6-7g.) Discussions with system contractor personnel should be held separate from scoring and assessment activities and the IPT chairperson should maintain a written record of the nature of these contractor/Government discussions.

*g. Assessment IPTs.* The purpose of a R&M Assessment IPT is to establish a final R&M database from which assessment of operational and technical R&M requirements and specifications will be made. In establishing that data base, the Assessment IPT determines the viability of aggregating individual test data bases and determines the impact of validated corrective actions on that data. The Assessment IPT is also encouraged to estimate the operational R&M performance using the established database. A R&M Assessment IPT should be held at the completion of a major acquisition phase or before a major program decision. Assessment IPTs should be conducted under the same guidelines as R&M IPTs and should have the same membership. The Independent Evaluator chairs the Assessment IPT and makes the final scoring determination when no majority opinion exists.

(1) *Conduct.* At the start of the Assessment IPT, the chairperson should coordinate with participating organizations to establish the spokespersons, attendees and the format of the Assessment IPT. They should also review and establish a common understanding of system requirements and FDSC, review the methodologies for developing R&M estimates and establish procedures for the corrective action process. The contractor restrictions described above also apply to Assessment IPTs. A test conducted in accordance with the OMS/MP using production representative systems should eliminate the need for data partitioning. However, the Assessment IPT should review equipment configurations, test profiles and results achieved to determine whether there is any need to partition the data in order to provide a valid estimate of system parameters.

(2) *Reliability and maintainability assessment.* Reliability growth tracking techniques are recommended for use in assessing the demonstrated reliability of tested systems and should address both software and hardware. Reliability growth tracking techniques provide the most rigorous and objective method for assessing the impact of configuration changes to the tested system. When developmental and operational tests have been conducted in accordance with the OMS/MP, the Assessment IPT should aggregate the data unless results indicate significantly different R&M performance or unless specific circumstances make aggregation inadvisable. This might occur when significantly different system configurations are used or when results from one test differ significantly from those of another. When data cannot be aggregated, the Assessment IPT should develop R&M parameter estimates based on the most representative set of data for which there is an adequate sample size. In order to determine the impact of fixes on the estimates of R&M parameters, the Assessment IPT should determine the likelihood of future occurrence of each failure mode. A failure mode can be considered eliminated or no longer assessable against an R&M requirement if the corrective action is supported by: a complete failure analysis, demonstration of the effectiveness of the corrective action in test, and verification of future implementation of the corrective action. Failure modes should be eliminated during the Assessment IPT only when there is concrete evidence that a failure mode should not recur in the operational environment and the fix does not create any new failure modes. If the failure rate of a particular mode has been reduced but not eliminated by a validated fix, the failure rate observed after the change should be prorated for the entire test length. Only fixes that have been verified as effective in test should be used to reduce the number of relevant failures. In the event there are significant differences among the spokespersons, the unresolved differences should be reported to decision reviews. The results of the R&M Assessment IPT should be:

- (a) Evaluated against operational R&M requirements established in the program's capabilities document.
- (b) Portrayed in the SER
- (c) Used to support the ASARC.
- (d) Used in the IPR decision processes and the Materiel Release process (see AR 70-1 and AR 700-142).

(3) *Reliability and maintainability parameter deviation.* Estimates of R&M parameters that deviate from those of the Assessment IPT may be presented, but should be accompanied by the Assessment IPT estimates and rationale for the deviation. Deviations from the agreed upon categorizations or demonstrated estimates should be clearly identified to provide a well-established audit trail.

## **6-8. Configuration management**

*a.* Configuration management (CM) is a technical data management process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements and design and operational information throughout its life cycle. CM identifies and documents essential functional and physical characteristics; controls changes; records and reports information; and verifies conformance to specifications, drawings, interface control documents, and other contract requirements of a system/item. For digital data files, it uniquely identifies the digital data files, including versions of the file, and their status (for example working, released, submitted, approved), and records and reports information needed to manage the data files effectively, including the status of updated versions of files.

b. The systems/items acquisition, maintenance, and support strategies determine the degree of CM control the Government exercises. To the maximum extent practicable, CM control will be delegated to the contractor or Government activity (in other words, MSC/Depot) targeted to encumber the system/item management mission.

c. In a situation where contractor logistics support by the prime contractor has been selected to be used throughout the fielding of the system, the current (preferred) CM approach is for the Government to maintain configuration control of only the system specification and performance specifications for items comprising the system (functional and allocated configuration baselines). The Government's emphasis is toward controlling performance, form, fit, and function requirements and away from controlling detailed engineering drawings and material/process specifications, unless such detailed control is necessary for the repair, overhaul, rebuild, or recapitalization of the system. The top-level product data (system and performance and interface specifications) resulting from development and production will remain a contract deliverable item. Available detailed data will be provided to future contractors as "information only" along with mandatory system specification, performance specification, and interface requirements unless there are military unique requirements that can only be satisfied by a 'build to print' approach. This performance based CM approach takes the place of the historical (traditional) CM approach of procuring, and placing under Government control, a detailed design TDP. It is essential the Government ensure control of the qualified product.

d. If the logistics support strategy calls for Government logistics support or if contractor logistics support will be competed in the future, then the Government will require more detailed product data (performance specifications, detailed designs, part numbers, and configuration management information). Use of excess technical data (data over and above that necessary for fulfilling the stated logistics support requirement) by the Government can hinder, if not actually preclude, contractors from exercising initiative/originality in searching for more cost effective design solutions and manufacturing methods. The Government should consider establishing a public-private partnership in accordance with 10 USC 2474 in order to avoid purchasing excessive product data.

e. The current approach represents a significant change to the traditional CM approach and provides an improved way of doing business when properly applied. In some cases, the best CM solution will be a combination of the traditional approach and this performance-based CM approach. In any case, the Government should acquire and control the minimum essential data to support the system's requirements throughout its life cycle.

f. Information regarding the CM discipline is provided in the various references for this section. Highlighted below are critical areas that warrant mention:

(1) The degree of Government control and the CM program requirements should be detailed in the Government configuration management plan (CMP) or a joint Government/contractor CMP.

(2) There should be only one Government configuration manager for any given system/item. The configuration manager should have primary design responsibility and will normally be at the research and development organization or designated project office responsible for development of the item/system. Inventory control points (ICPs), depots, and other support organizations should not appoint configuration managers or attempt to exercise configuration control; however, they may be a member of the IPT referenced in (4), below. Although, under the current CM approach, the contractor exercises CM control of the detailed design, the CM authority for the TDP used on the contract remains with the Government.

(3) The configuration manager's responsibility should be complete, and the configuration manager's decisions should be autonomous, particularly approval/disapproval of all CM actions. The configuration manager may elect to retain full and complete CM responsibility or delegate some portion to the organization providing matrix support. To the maximum extent possible, configuration management responsibilities should be delegated to the organic element responsible for the system or to the contractor with minimum Government oversight of the contractor's actions. To the extent possible, 10 USC 2474 should be applied to establish a public-private partnership between the Government and contractor.

(4) A configuration control board (CCB) should be formed to assist in evaluating and approving/disapproving proposed changes to the configuration baselines established by the Government. The CCB should have members representing all disciplines that may be impacted by a proposed change. Ideally the CCB will be the IPT assigned to the system/item. CCB members should provide a detailed evaluation of the impact of each proposed change in their respective areas (for example, proposed change(s) to the system affects the fielded training components where the training equipment must also be upgraded to support the current configuration). While the CCB provides the configuration manager recommendations regarding approval/disapproval, the final decision authority is the Government configuration manager.

(5) To the maximum extent feasible, the contractors' existing in-house CM policies and procedures should be used consistent with ANSI 649, Configuration Management.

(6) Government controlled configuration items (CIs) should be identified at the top most level of the work breakdown structure that will allow proper fielding and full supportability of the system/item throughout its life cycle. This is necessary

to allow contractor flexibility under performance-based acquisitions and minimize the number of changes requiring Government action. Identifying CIs at the lower levels of the work breakdown structure significantly restricts contractor initiative and actions that the contractor can take without Government approval.

(7) The functional and allocated configuration baselines are performance, form, fit, and function oriented, and should be the only configuration baselines required for performance-based acquisitions. Where a product configuration baseline is deemed essential, the level of detail in the baseline should be the minimum to support configuration control of the system/item.

(8) Use of performance-based acquisitions and contractor configuration management of product data will minimize the number of changes/deviations that require processing by the Government.

(9) For performance-based acquisitions where a product configuration baseline is not being established by the Government, Physical Configuration Audits will not be required except at the interface and end item performance specification level.

g. Documentation, as used in CM, means the formal records for a system/item, regardless of the media (hard copy, magnetic tape, optical disc, electronic, and so on) in which it is generated, transmitted, stored, or maintained. Documentation must comply with the appropriate transmittal standards for the media in which it is presented.

(1) The requirements set forth in AMC-STD-2549A are used for delivery of data by the contractor to the Government.

(2) To enhance the practice of CM, each Army PEO, Direct Reporting PM and AMC MSC will designate a configuration management officer (CMO) as the focal point for CM. The name, office symbol, address, phone number and e-mail address for the designated CMO is to be provided to the current Army CMO. These CMOs will form a Configuration Management Advisory Group (CMAG) to evaluate data management procedures/policies, work data management issues having Armywide impacts, and recommend procedural/policy changes for the future.

## **6–9. Human systems integration**

The HSI program is the Army's implementation of DODs HSI Program in accordance with DODI 5000.02, and must be executed to achieve the objectives of DODD 5000.01. Acquisition policy in DODD 5000.01 stresses the importance of a "total system" approach. HSI/HSI focuses on the human component of the total system by addressing and integrating requirements for manpower, personnel capabilities, training, human factors engineering, system safety, health hazards, and Soldier survivability. Human factors engineering serves as the integrator for assessments performed by each of the other HSI program requirement areas. Since all aspects of HSI are interdependent, PMs are encouraged to establish HSI IPTs to support the acquisition process and ensure that, as trade-offs are made, systems are designed to optimize total system performance, minimize total ownership costs, and accommodate the characteristics of the population that will operate, maintain, and support the system. This section briefly discusses and describes fundamental procedures for implementing HSI program. A detailed description of HSI program scope, objectives, and organizational responsibilities is contained in AR 602–2.

a. The HSI program is a comprehensive management program and a technical integration process that integrates human considerations into the system acquisition process to enhance Soldier-system design, reduce life cycle ownership costs, and optimize total system performance.

b. The HSI program process identifies issues, and constraints from the seven HSI program domains plus it actively manages the integration of these human performance and reliability considerations into the materiel acquisition and development processes. As an umbrella concept, HSI program not only enhances integration among its domains but also integrates these domains with relevant design activities in the traditional areas of maintenance, logistics, and support. Further, HSI program technical information plays a prominent role in guiding acquisition decisions from concepts and studies approval through deployment.

c. The HSI program is a system that identifies risk and possible risk mitigation strategies. It provides decision-makers with information upon which to make trade-offs in areas such as personnel quality and numbers, technology, conditions, standards, costs, Soldier survivability, safety, health hazards risks, design, and interface features. The purpose of the tradeoffs is to appropriately manage risks. Using HSI, when trade-offs are decided early in system development, equipment is designed and built right the first time, avoiding costly retrofits and materiel changes. Additionally, new equipment is easier to operate and maintain, the O&S costs are reduced and system performance is enhanced. As a result, the system's life cycle cost is reduced.

d. The HSI program recognizes that the capabilities and limitations of the individuals who operate, maintain, repair, and support Army equipment are an important consideration when designing or selecting hardware and/or software. The HSI program process seeks to optimize total system performance and increase the Army's warfighting capability. From a HSI program perspective, a total system includes the equipment (hardware, software, and trained personnel), embedded training capabilities/options, training devices, trained personnel, plus the environment in which the system must operate.



*e.* The HSI process refers to those procedures that are accomplished to ensure that Soldier performance issues are identified, addressed, and managed throughout the design, development, and acquisition of a materiel system. These procedures also apply to alternative acquisition strategies and to modifications. The use of HSI modeling and simulation tools such as the Improved Performance Research Integration Tool (IMPRINT) and Transom Jack can greatly assist in the HSI program process.

*f.* The CBTDEV initiates and manages the CBTDEV working group. A HSI representative is on the CBTDEV working group and assists in developing the capabilities documents (ICDs, CDDs and CPDs). The CBTDEV working group determines the level of HSI involvement for each system. Perhaps the group's most critical role is communication. The group ensures that identified issues and concerns are communicated to other acquisition organizations and are included in requirements and program documents. The Army Research Lab-Human Research and Engineering Directorate (ARL-HRED) participates in all CBTDEV working groups, until it becomes clear that there is no further need, and works to ensure essential coverage by the other HSI domains. ARL-HRED informs the CBTDEV working group leader and the Director of the Army's HSI Program when they determine that HSI coverage is inadequate or there are issues that need to be evaluated.

*g.* The HSI assessments contain issues that were not resolved during the IPT process. They are prepared prior to each milestone decision review and the FRP DR on acquisition programs. HSI Assessments, included in the Modified Integrated Program Summary (MIPS) as one of the Army staff assessment memoranda for ACAT I and IA programs and ACAT II programs where the AAE is the MDA, provide the basis for representing any unresolved critical HSI issues to the MDA. For ACAT II and III programs where the AAE is not the MDA, the HSI assessment is given to the appropriate MDA. HSI assessments inform acquisition executives, at key decision points, of critical issues that, if left unresolved, could seriously degrade mission performance, lead to increased O&S costs, or derail acquisition programs. HQDA (DCS, G-1), with the assistance of ARL-HRED, conducts HSI assessments. The MATDEV must task the HSI domain agencies and provide funding (as required) for their assessments.

(1) The HSI program, to have the greatest impact on system design, must be considered early in the system acquisition process. The MATDEV must summarize his HSI planning and strategy in his program acquisition strategy. HSI's success depends upon the MATDEV involving HSI domain representatives in program IPTs so that issues are addressed as early as possible to facilitate easier resolution. HSI requirements/constraints must also be reflected in program documents to ensure optimal capability between the materiel and designated operator, maintainer, repairer, and support personnel. Embedding HSI requirements in other program documents makes HSI an integral part of the acquisition process. These documents include but are not limited to the capabilities documents (that is, ICD, CDD, and CPD), system specifications, SOW, source selection process, and the TEMP.

*(a)* Specific HSI requirements may be addressed in paragraph 6 of the program's CDD and CPD-System Capabilities Required for the Current Increment.

*(b)* All HSI domains should be addressed in paragraph 14 of a program's CDD and CPD-Other System Attributes.

(2) Human performance issues are addressed in the TEMP and SEP so that they can be evaluated and/or tested for the effectiveness of the appropriate risk mitigation. Provisions for testing HSI issues are included in the SEP and should be addressed in measures of performance (MOP) and MOE. The SEP contains HSI issues and dictates realistic testing conditions requirements to the test community.

## **6-10. Human factors engineering**

*a.* Human factors engineering (HFE), a domain of HSI, is a major technical element within the HSI process. Accredited HF engineers must be employed to ensure the highest quality effort since HFE is both the integrator of HSI and a significant analytical discipline on its own. A sound HFE program ensures human factors engineering/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. To achieve this, the MATDEV must address HFE in contract deliverables, regular Government/contractor IPT teams, and ensure issues are resolved when possible and adequately tested. Where practicable and cost effective, system designs will 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. A successful HFE program will help ensure program suitability and supportability during critical test events. This guidance helps Army CBTDEVs and MATDEVs in planning, scheduling, and executing a sound HFE technical effort in support of materiel acquisitions.

*b.* Selected HFE references include:

- (1) See MIL-STD-1472G.
- (2) See MIL-STD-46855A.
- (3) See MIL-STD-1474E.
- (4) See AR 602-1.

(5) The DOD Information Technology Standards Registry (DISR).

(6) DODD 4630.05.

c. For more information regarding subject matter expert (SME) support for HFE application, contact the HFE ARL–HRED field element at the HFE sites listed below. If there is no field element at a specific site, contact: U.S. Army Research Laboratory, Human Research and Engineering Directorate (AMSRL–HR–M), Aberdeen Proving Ground, MD 21005–5425.

(1) U.S. Army Air Defense Artillery School.

(2) U.S. Army Armament Research, Development and Engineering Center.

(3) U.S. Army Armor Center and School.

(4) U.S. Army Aviation Warfighting Center and School.

(5) U.S. Army Aviation and Missile Command.

(6) U.S. Army Joint Forces Operations Command.

(7) U.S. Army Communications-Electronics Command.

(8) U.S. Army Field Artillery Center and School.

(9) U.S. Army Infantry Center and School.

(10) U.S. Army Special Operations Command.

(11) U.S. Army Natick Research, Development and Engineering.

(12) U.S. Army Test and Evaluation Command.

(13) U.S. Army Engineer Center and School.

(14) U.S. Army Signal Center and Fort Gordon.

(15) U.S. Army Simulation, Training and Instrumentation Command.

(16) U.S. Army Tank-Automotive and Armaments Command.

(17) U.S. Army Combined Arms Center.

(18) U.S. Army Intelligence Center and School.

(19) U.S. Army Medical Command.

(20) ARL–HRED Fort Belvoir Field Element.

d. The HFE is the technical and management effort that includes human performance in the materiel development process. The HFE goals in system design are to enhance human performance, optimize total system performance and increase operational effectiveness on the battlefield while decreasing operating and support costs. To accomplish this, one must define and apply HFE data, principles, and criteria to human performance and design requirements during system definition, design, development, evaluation, and deployment of operational and training systems. The application of HFE ensures that system design effectively uses Soldiers' mental and physical strengths while compensating for their limitations. The HFE is the HSI domain that supports and enhances effective Soldier-machine interaction within the desired training time, Soldier aptitudes and skills, physiological tolerance limits, and Soldier physical capabilities. HFE provides this support by determining the Soldier's role in the materiel system, and by defining and developing Soldier-materiel interface characteristics, work place layout, and work environment. The HFE ensures the system design considers the strengths and limitations of the operators, maintainers, and supporters to enhance total system performance. The HFE SME provides the interface to translate manpower, personnel, training, Soldier survivability, health hazard, and system safety concerns to affect system design.

e. The MATDEV, CBTDEV, and TNGDEV implement aspects of HFE in their respective areas in support of the acquisition process. The CBTDEV and TNGDEV should ensure HFE is included in each phase of the Future Requirements Determination Process that results in the establishment of requirements to enhance the Army warfighting capability. The MATDEV should ensure HFE is included in all aspects of materiel development ranging from technology base research, and technology demonstrations through the design of new and modified systems.

f. The ARL–HRED has the mission to provide HFE support to the MATDEV and CBTDEV in all phases of the acquisition process. That mission includes HFE research and development, concept formulation, analyses, design, modeling and simulation, and development test and evaluation. HFE is one of seven HSI domains and interfaces with the CBTDEV's HSI/HSI Working Group, the HSI WIPT, and other HSI domains to produce tradeoffs if necessary (see AR 602–2). ARL–HRED works to ensure essential participation in the IPT by other HSI domains and informs the IPT leader and the Director of the Army's HSI Program when coverage by any domain is inadequate or there are issues that need evaluation. HFE develops the HSI position for acquisition process decisions. The MATDEV and CBTDEV should coordinate with ARL–HRED to obtain the required HFE support, facilitate coordination between ARL–HRED and other organizations in the acquisition process, and acquire resources to accomplish the HFE effort. In addition, ARL–HRED develops and coordinates the draft HSI Assessment and provides it to DCS G–1 (DAPE–MR) for completion and approval.

g. The overall HSI functions within the Army are conducted jointly by the CBTDEV, TNGDEV, and the MATDEV. The CBTDEV, TNGDEV, and MATDEV are responsible for integrating the efforts of all seven HSI domains, including

coordination of the specific HFE activities listed below, with the HFE SMEs supporting the program. ARL-HRED has the mission to provide the HFE SME. During these various activities, the MATDEV and CBTDEV should assist the HFE practitioner to access other program participants involved in system design and concept development, such as systems design engineering; integrated logistic support; system safety; health hazards; reliability, availability, and maintainability; training; and test and evaluation. ARL-HRED has been directed by the AAE to ensure that it provides adequate coverage for all CBTDEV working groups and IPTs regardless of system acquisition cost categories. ARL-HRED was also directed to ensure adequate coverage by the other HSI domains. To ensure that the spirit of the IPT process is honored, ARL-HRED will inform the IPT leader and the Director of the Army's HSI Program as soon as they determine that a significant issue is not being worked or has high risk of failure.

*h.* As identified in MIL-STD-46855, the human engineer practitioner participates within the materiel acquisition process in three main technical areas: analysis; design and development; and T&E.

(1) *Analysis area.* Continued application of human-centered research data, methods, modeling and simulation, and other tools to the materiel acquisition process ensures maximum operational and training effectiveness of the system. HFE support to this area begins with analyses of the functions that the system must perform to achieve its mission objectives. The analysis of the functions provides data to help determine the best allocation of tasks to personnel, hardware, or software. The results of these analyses are HFE guidance related to combat effectiveness; human workload predictions; Soldier-machine interface requirements; and procedural, software, and hardware innovations needed to ensure that the human element will fulfill and enhance total system performance.

(2) *Design and development area.* The purpose of HFE support to this area is to provide human-machine system design guidance that ensures that the design effort considers the strengths and limits of the human operators, maintainers, and supporters. The human-machine interface design includes procedures, software and hardware design, embedded training capabilities/options, training requirements, work environments, and equipment associated with system functions requiring human interaction. The HFE SME converts professional knowledge, expertise, and the results of HFE-related research and analyses into HFE design requirements and assessment criteria. This effort depends heavily upon the appropriate use of HFE databases, tools, and techniques. With this Soldier-in-the-loop emphasis, the final system will provide an effective design that will operate within human performance strengths and limits, meet system functional requirements, and fulfill mission goals with the least possible demands on manpower, personnel aptitudes and skills and training resources.

(3) *Test and evaluation area.* The HFE support to the T&E effort is critical for assuring that the system's Soldier-machine interface, associated procedures, training and human performance requirements can be achieved within the intended operational environment. Areas to be considered include Soldier aptitudes, tasks and skill levels, training, human performance reliability, and life support and biomedical factors that affect human performance. HFE SMEs work closely with the CBTDEVs and MATDEVs when forming critical HFE and human performance-related issues and criteria to be used in conducting developmental and operational T&E. The HFE T&E results and lessons learned provide an overall assessment of the tested design capability to meet user needs with the Soldier-in-the-loop, identify improvements to increase the system's combat effectiveness, and provide human performance data and design criteria for follow-on acquisitions or modifications.

*i.* The HFE offers a large body of scientific knowledge and technical data that, when applied, ensures the effective integration of the human component in the system design. The following areas are the main materiel acquisition process activities that should receive HFE support:

- (1) Technology base research.
- (2) Concepts and studies.
- (3) WIPT.
- (4) Front-end analyses.
- (5) ICD.
- (6) RFP.
- (7) Source Selection Process.
- (8) EMD.
- (9) CDD.
- (10) CPD.
- (11) T&E.
- (12) HFE Assessments.
- (13) HSI Assessment.
- (14) ME.
- (15) Post-fielding evaluations.
- (16) STRAP assessment.

## 6–11. Technical data management

*a.* Performance specifications provide a means to reduce the high cost of the Government buying engineering and technical (product) data, and managing and maintaining it for the life of the system. Procurement of product data is essential unless the support strategy is for the original equipment manufacturer to perform maintenance and support for the life cycle of the weapon system. Without product data, it is neither possible to perform depot maintenance, overhaul or recapitalization, nor to ensure traceability of qualified products.

*b.* There are four basic alternatives for providing life cycle support. First, the PM can contract for that support, giving a contractor full responsibility over the life of the system, to include full ownership and maintenance of the product data. Second, the PM can contract for access to all or some portion of the product data for the life of the system, thus giving the contractor all or a portion of the data management responsibilities for the life of the system but retaining within the Government, responsibility for use of that data in the provision of support to the system. Third, the PM can contract for purchase of some or all of the product data and keep within the Government the full responsibility for system support, including the ownership and maintenance of the product data. Or fourth, he can select from these alternatives for different support functions or for different stages of the life cycle. However, with any alternative other than contractor life cycle support by the prime contractor, the Government must specify the specific data in which it has an interest, how that data will be accessed on the contractor's system or delivered to the Government, and the purposes for which the data is being accessed or delivered.

*c.* When exploring which of these strategies to use, PMs need to carefully consider the cost and capability benefits and drawbacks. When the acquisition strategy or supportability strategy call for the Government to assume responsibility for a support function that relies on product data, it is essential that the PM clearly define in the contract the Government requirements for that data. This requirement is independent of whether that data is to be delivered to the Government or retained by the contractor and used by the Government. Under all of the alternatives, it is necessary to address the physical protection, data rights, and usage of that data, without inhibiting the exchange, access or use by authorized sources.

*d.* Equally important are the rights in technical data and intellectual property terms and conditions. Intellectual property (IP) considerations have a critical impact on the cost and affordability of technology and they should not be treated as a separate or distinct issue that can be negotiated apart from contract performance requirements or price/cost factors. It is not sufficient to merely incorporate the standard FAR and DFARS clauses, because they do not always resolve critical IP issues. An excellent guide on IP is "Intellectual Property: Navigating Through Commercial Waters" that can be found in the AKSS.

*e.* Previously mandatory policies (for example, DOD 5010.12–M) that define the process for putting product data on contract are no longer directly referenced in DODI 5000.02 and, thus, are no longer mandated by that document. However, these processes provide a proven method for ensuring that the Army addresses its contractual data needs in a reasonably uniform manner and that product data is available where and when it is needed. To ensure that Government needs are protected, the following practices are required when data requirements are addressed by the Government in contracts:

(1) The DOD 5010.12–M, chapter 2, requires use of data item descriptions (DIDs) (either permanent DIDs listed in the acquisition management systems and data requirements control list (AMSDL) (DOD 5010.12–L), or one-time DIDs approved by the Service Data Manager (MIL–STD–963B)) to define data requirements.

*(a)* The DOD 5010.12–M, chapter 3 requires and provides guidance on the use of a contract data requirements list (CDRL), listing all data deliverables and associated data delivery/access requirements and schedules, tailoring instructions and data marking instructions.

*(b)* DODI 5230.24 and DOD 5010.12–M, chapter 4, require and provide guidance on the use of distribution statement marking instructions.

*(c)* DOD 5010.12–M, chapter 1, requires a clear definition of the Government's data rights.

*(d)* In addition, AR 700–70 requires use of a document summary list (DSL) listing all documents cited in the contract as mandatory or referenced as mandatory by the cited documents.

(2) Logistics support for Army systems creates the largest requirement for data in today's acquisition reform environment. It is imperative that data requirements in development and spare/repair/replenishment part contracts support the Government requirements for data across the system life cycle. To this end, the PM will assure that the contract adequately addresses the data requirements of the supporting AMC MSC Integrated Materiel Management Center (IMMC) or the equivalent logistics support activity for the item being procured.

(3) To enhance the practices through which Engineering and Technical Data are defined, purchased, managed, or accessed, each Army PEO, Direct Reporting PM and AMC MSC will designate a data acquisition management officer (DAMO) as the focal point for Data Acquisition Management. The name, office symbol, address, phone number and e-mail address for the designated DAMO is to be provided to the current Army DAMO (within the office of the AMC G–3). These DAMOs will form a Data Management Advisory Group (DMAG) to evaluate data management procedures/policies, work data management issues having Armywide impacts and recommend procedural/policy changes for the future.

f. The objectives of the Army's Technical Data Management Program are as follows:

- (1) To achieve uniformity in data management policies, procedures, practices, and requirements.
- (2) To remove barriers that prevent industry from making full use of commercial products, practices, and processes.
- (3) To eliminate non-value-added requirements which are not essential to the design and/or production of an item.
- (4) To encourage the use of performance specifications and interface data.
- (5) To encourage contractor management of detailed engineering product data.

g. This section addresses the implementation of data management in the areas of data requirements, DIDs, and TDPs to achieve the objectives expressed above. The key to eliminating non-value-added requirements is streamlining or zero-basing and having industry participate in data requirements identification. The following paragraphs provide specific information on how this can be done.

(1) *Streamlining data requirements.* Streamlining is an important process in eliminating non-value-added requirements that drive up the acquisition costs. To streamline data requirements, a new baseline must be established for every acquisition by identifying those requirements designated by law, regulation, or policy, and then adding those data requirements justified as being essential to achieve a product with the desired performance and support capability within the stated cost goals. Selectively applying and tailoring recurring data requirements listed in the AMSDL accomplishes streamlining. Tailoring of data requirements consists of modifying, altering, or changing the requirement. Do not add requirements to an existing DID. Additional guidance for tailoring can be obtained in MIL-STD-963C.

(2) *Unique requirements.* Unique data requirements not identified in the AMSDL may be used in solicitations, contracts, and orders when approved for one-time use by the data manager. DIDs approved for one-time use are valid for only the contract for which they are approved. Follow-up action is necessary to allow re-use, gain full approval, and have the DID listed in the AMSDL if it is a recurring data requirement.

(3) *Industry involvement.* Industry can play a major role in eliminating non-value-added requirements and barriers to commercial products, practices, and processes through early involvement with the Government in identifying data requirements (in other words, evaluating proposed data requirements and offering alternatives that could cost less if adopted). A draft RFP can be a useful tool in this process.

h. The DID describes data requirements and achieves uniformity in data management policies, procedures, and requirements in a solicitation or contract. The DID preparation and approval process is discussed below.

(1) *DID categories.* The DIDs fall into two categories, Recurring and One-Time. Recurring DIDs are those that repeat year after year on a solicitation or contract. One-Time DIDs are those that are approved for one-time use on a single solicitation or contract. Both Recurring and One-Time DIDs are prepared in accordance with MIL-STD-963C.

(2) *DID approval process.* All Recurring DIDs should be submitted for approval for incorporation in the AMSDL. The approval process begins at the MSC/buying activity through the Army's DAMO to OSD.

(a) The point of contact (Army DAMO) for data management activity is the AMC, DCS G-3.

(b) The name and phone number of the MSC/buying activity point of contact or data manager should be provided to the Army DAMO, and updated as changes occur.

(c) Organizations that do not have a DAMO for assisting in DID preparation and approval should use the nearest available Army office having that capability.

(d) It is recommended Recurring and One-Time DIDs be coordinated with all users. The exception is where a Recurring DID is part of a Military Standard, then coordination should be in accordance with DOD 4120.24-M.

(e) One-Time DIDs are approved by the Army DAMO. A copy of the One-Time DID attached to a memorandum justifying the requirement should be furnished to the Army DAMO. The MSC/buying activity DAMO can review the One-Time DID to ensure adherence to DOD/Army policy before submission to the Army DAMO.

(3) *DD Form 1423.* The DD Form 1423 (Contract Data Requirement List) is used for identifying proposed data requirements in solicitations and deliverable data items in contracts (with the exception of limited data requirements mandated by FAR Clause, which are not listed on the form).

(4) *Document summary list.* Data requirements and the specific tailoring of data requirements contained in military standards and DIDs can be summarized on a DSL. This provides a consolidated reference point listing all the military standards and DIDs contained in the RFP and contract SOW. (See fig 6-1.)

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## Document Summary List Information

1. General. The term "documents" used in this figure means documents employed in a solicitation, contract, or order to identify specification requirements and data requirements. The term "documents" includes any form or structure (e.g., Military or Federal Specifications or Standards, Standard and One-Time Data Item Descriptions, unique system or program specifications) used to delineate specification and data requirements.
2. The Document Summary List (DSL) should:
  - a. Identify by number, title, and issuance date all documents (tailored or untailored) cited in a solicitation, contract, or order, except for TDP documents.
  - b. Identify the Document Category cited document.
  - c. Cross-reference the applicable section, paragraph, subparagraph, and line (within the paragraph or subparagraph) of the solicitation, contract, or order where the document is cited.
  - d. Specific tailoring applicable to the cited document should be identified on the DSL.
3. All documents, tailored and untailored, can be directly cited on the DSL.
4. Extensive tailoring. An attachment to the DSL can be used as needed to handle the overflow of tailoring information. The DSL should reference the attachment.
5. Separation of tailoring. When separation of the tailoring applicable to a document from the contractual tasking statement would result in a significant and unacceptable loss of context, the DSL should identify the section, paragraph and subparagraph, and line (within the paragraph or subparagraph) in the solicitation, contract, or order where the tailoring is contained.
6. Documents identified in a TDP may be excluded from the DSL.
7. One-time use documents should be identified and attached to the DSL.
8. Sample DSL format.

Document Summary List  
For  
Procurement/Solicitation/Contract Number  
Procurement/Solicitation/Contract Title

1. Document Identification Number
- Document
- Category
- Document Title
- Document Date
- (Contract Reference)
- Applicable Tailoring

**Figure 6–1. Document summary list information**

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(5) *Technical data packages.* As indicated above, the Army is moving to performance specifications based on form, fit, and function and avoiding detailed product (build-to-print) TDPs. This changes the acquisition medium, but not how the Army buys and/or uses TDPs or performance specifications. This section discusses the mechanics of buying such documents.

(a) *Acquisition.* The acquisition of a TDP should be planned, programmed, budgeted, funded, and executed to assure availability of the TDP in time to initiate procurement. Also, commercial drawing formats should be considered in TDP acquisitions, especially for commercial/NDI.

(b) *Ordering of data.* The ordering of TDPs, technical manuals, and general data should be done in accordance with the DFARS Subpart 204.7103-1.

(c) *Interactive electronic technical manuals.* The automation of technical manuals is being conducted under the IETM program. The Logistic Support Activity (LOGSA) is the Lead Agency for the Army IETM program and should be contacted to coordinate IETM development.

## **Section III**

### **Other Design Considerations**

#### **6-12. Work breakdown structure**

a. The WBS sets the foundation for describing materiel acquisition programs. The PM uses the WBS as the basis for developing a SOW for a RFP. The WBS describes a time-independent arrangement of program activities in a logical framework. It consists of work elements necessary to accomplish the program objectives. The WBS is terraced to form a matrix of activities, or work elements, at levels of decreasing systems complexity. The layering allows management to assess program progress toward quantifiable and measurable goals along a time line established in the acquisition baseline.

b. The WBS also provides a basis for contractor cost data reporting (CCDR) by giving it structure. The layers or matrix, allow managers to view accomplishments and costs to the lowest level of the WBS. Lower levels may exist, but only those that have been approved in the program WBS will appear in the CCDR plan. The WBS and CCDR are closely related documents. The WBS gives structure to a program while the CCDR describes cost data collection frequency and format for specific WBS elements.

c. Procedures for submitting and processing the WBS/CCDR once prepared by the PM are—

(1) For cost reimbursable contracts, matrix support elements in coordination with the PM/PEO develop a WBS/CCDR that is unique to the program and submits it to the DASA (CE) at least 90 days prior to solicitation.

(2) The DASA (CE) (SFFM-CA-PA) reviews the WBS/CCDR Plan for adequacy as a basis for cost reporting.

(3) The PM incorporates/resolves the DASA (CE) comments and sends the WBS/CCDR Plan through the IPT to the Deputy for Cost Analysis for review and Army approval. Once Army approval is obtained, the WBS/CCDR Plan is sent to the OSD Cost Analysis Improvement Group (CAIG) for final approval at least 60 days prior to solicitation on ACAT I programs. The Deputy for Cost Analysis is the approving authority for ACAT II programs. CCDR Plans for ACAT III programs are approved by the delegated MDA, with a copy furnished to DASA (CE).

(4) Once approved, the PM requests the PCO to incorporate the WBS/CCDR Plan into his solicitation.

(5) After contract award, it may be necessary to amend the WBS/CCDR Plan in order to accommodate the more specific nature of the development. The PM should prepare a change request memorandum (no specified format) and forward it to DASA (CE) for approval. For ACAT I programs, DASA (CE) (SFFM-CA-PA) will review, comment (as required) and forward the PM's change request to the OSD CAIG for final approval. DASA (CE) will approve ACAT II changes. Changes to ACAT III plans will be approved by the MDA, with a copy furnished to DASA (CE).

#### **6-13. Performance measurements**

a. The PM develops and utilizes a performance measurement program in compliance with the Government Performance and Results Act of 1993 and the National Partnership for Reinventing Government.

b. Performance measurement is the process of assessing progress toward achieving predetermined goals, including information on the efficiency with which resources are transformed into goods and services (outputs), the quality of those outputs (how well they are delivered to clients and the extent to which clients are satisfied) and outcomes (the results of a program activity compared to its intended purpose), and the effectiveness of government operations in terms of their specific contributions to program objectives.

c. A critical element of the performance measurement system is to link the requirements of the DOD strategic logistic plan, the Army strategic logistics plan, the program's capabilities document, and the process measures to be applied across the program at the strategic, operational, and tactical levels.

## **6–14. Value engineering**

*a.* This section provides general guidance to the Army for the implementation of value engineering (VE) on projects and programs as required by 41 USC 432 and OMB Circular A–131.

(1) VE should be used continuously over the life cycle of a program as a mechanism for persistently addressing life cycle costs as required by DODI 5000.02. Program Managers should plan a minimum of one VE workshop annually and are encouraged to use the VE study/workshop approach for analyzing major cost drivers and addressing problem areas more often as needed. These workshops may address specific problem areas that have been identified or analyze opportunities for value improvement on any of the top program cost drivers.

(2) The MSC Commanders should plan at least one VE workshop annually. These workshops may address specific problem areas that have been identified or any of the top ten Command cost drivers if specific problems have not been identified for study.

*b.* The VE methodology is applicable throughout the life cycle of a system. VE should be started as early as possible (for example, before design release) in order to minimize cost and provide maximum savings potential. IPTs should include VE personnel as team members to facilitate value analysis throughout the decision making process.

*c.* Contractual VE, as set forth in the FAR Part 52.248–1, provides little or no incentive for the contractor to do VE early in the life cycle. The PM should link VE to the design-to-cost targets or other measurable goals with incentives to effectively motivate the contractor. The VE methodology should be used to achieve design to cost targets.

*d.* The FAR Part 48.102, requires broad use of VE by numerous agencies in various forms of contracts. There are two types of VE contract clauses. The VE incentive (VEI) clause entitles the contractor to a share of the savings resulting from accepted proposals that the contractor initiates on a voluntary basis. The second clause is the VE program requirements (VEPR) clause that requires the contractor to undertake a specified VE program as a contract line item.

*e.* The use of performance specifications makes it more difficult to identify value engineering change proposals (VECPs) because the Government does not control the detailed design specifications. However, a proposal that requires a change to the contract to implement and produces a life cycle cost savings is still the basis for a valid VECP, so the basic philosophy has not changed.

*f.* The prime benefiting program(s) bear the cost of the VE effort and should identify funds for this investment and share in the monetary returns on the investment in the VE action.

*g.* Organizations should assure that personnel assigned to manage and execute the VE program have had training in the VE methodology and execution of the VE clauses. There is a value engineering manager (VEM) at most major commands and subordinate commands to provide information on VE training opportunities. The VEMs may also provide functional support to PEOs/PMs for various activities such as VE reporting.

*h.* Contractors and Government employees should be encouraged to use VE. The Government should partner with the contractor where possible and hold joint VE studies/workshops to see value improving opportunities.

## **6–15. Accessibility requirements**

For systems that may be operated or maintained by people with disabilities, the MATDEVs will ensure that system development includes accessibility requirements as outlined in 29 USC 794d (Section 508 of the Rehabilitation Act of 1973). For example, all electronic and information technology, including telecommunications, software, hardware, web sites, printers, fax machines, copiers, and information kiosks, where appropriate, will include requirements to ensure people with disabilities are able to use the system and have access to the information or data.

## **6–16. Corrosion prevention and control**

*a.* Corrosion creates an enormous burden for the Army. It affects Army readiness, equipment reliability, and troop morale, but mainly the cost of maintenance and “ownership” of weapon systems. Corrosion, simply stated, is the process of unwanted degradation and deterioration, whereby a material (metal or non-metal) reacts with its environment. CPC is an important design consideration that impacts reliability and maintainability of Army materiel. Lack of attention to CPC can increase operation and support costs and add to the Army logistics burden.

*b.* The CPC continues as a concern throughout a system’s life cycle. Although corrosion will never be completely stopped, its cost can be significantly reduced. The PM/MATDEV should develop a CPC Program to address the serious concerns of weapon system corrosion. The objectives of the program are to decrease life cycle costs, increase system readiness by reducing equipment down time, and reduce the maintenance burden being placed on diminishing active and reserve work force resources. The PM/MATDEV should refer to AR 750–59 when formulating the CPC program.

*c.* This section contains guidelines for establishing and managing the Army CPC program throughout the life cycle of Army materiel systems. It applies to all active Army elements having responsibility for the development, acquisition, and support of military materiel. The ultimate goal of the CPC program is to reduce corrosion in Army products. This general goal must translate into specific, achievable objectives so that manpower and cost savings can be realized. A large share



of a system's O&S cost can be attributed to the effects of corrosion on systems operation and maintenance. The ability to prevent or detect corrosion in a reliable and consistent way reduces these costs by allowing maintenance periods to be extended until there is a need to repair or replace parts due to failure or wear out. CPC should result in significant savings in the operation and maintenance costs for the fielded units as well as help the field commander reach the 90 percent readiness goal.

d. The following guidance is intended to provide PEOs, PMs, CBTDEVs, MATDEVs, testers, independent evaluators, and system engineers with the information necessary to develop, initiate, and effectively manage a CPC program. The CPC program helps guide system design, training, and use; both for current systems and future system development.

(1) To achieve the CPC objectives, a two pronged approach is necessary. The first is to identify, test, and implement the latest CPC state-of-the-art or best commercial practices available in industry. The second is to develop, verify, and field new and emerging technologies that can be effectively used to prevent and/or combat corrosion. Since, in most cases, corrosion issues are similar among many different commodities, the results of this two pronged attack are:

- (a) The fielding of new systems and assemblies with CPC inherent in their design and manufacture.
- (b) The development of repair procedures and treatments that can be applied to currently fielded equipment.

(2) The CPC plan addresses several distinct aspects: management structure, policy, communication, and science and technology. All of these aspects are meshed together to form a whole. Any missing part diminishes the whole and jeopardizes the successful corrosion prevention efforts. The management structure of the plan is based on the concept of having a consistent approach to problem solving while maximizing autonomy for identifying corrosion problems/issues and planning the work to address these problems.

(3) The aspect of communication addresses the issues of training, accurate and current data reporting, testing, and user readiness. The S&T aspect addresses such things as surface protection, material compatibility, sensor technology, simulation and modeling, lubricants, field and laboratory surveillance, and packaging.

e. A major policy focus is to ensure that the most appropriate and economical corrosion control technologies are included in the weapon system design and that CPC is an integral part of the acquisition process for new systems and rebuild programs. To ensure the CPC plan does not become isolated within the system development, provisions are made to incorporate CPC into key system documents and milestone reviews. Examples of this are—

(1) *Statement of work.* Statement of work (SOWs) should include requirements for CPC.

(2) *Publications.* Technical manuals (TMs), TBs, storage serviceability standards (SSSs), and DMWR/NMWR should include a separate section, appendix, or work package that specifically addresses CPC.

(3) *Technical data packages.* Technical data packages (TDP) reviews for CPC should be conducted on drawings, military specifications, and QAPs for items/systems in development. These reviews should include participation of materials experts from the Government, academia, and industry. Review of product assurance documents should assure comprehensive inspection for CPC with particular emphasis on inspections for protective finishes. Accelerated Corrosion Testing, such as Cyclic Salt Fog Testing, should be included in these documents, when applicable.

(4) *Performance specifications.* Performance specifications should contain requirements for CPC review and testing to assure that the design is resistant to corrosion and material deterioration for the specified life cycle of the equipment. It is essential that performance specifications used in conjunction with commercial/NDI acquisitions contain comprehensive CPC requirements, as there may be no Government controlled drawings or other controls on the design.

(5) *Test and evaluation master plans.* Test and evaluation master plans (TEMPs) should include testing for CPC. Testing includes exposure and performance tests in natural and accelerated environments where corrosion is most likely to occur. Corrosion and deterioration testing in all anticipated storage and use environments will be an essential consideration (for example, exposure to humid tropic environments is effective in accelerating corrosion). Comprehensive CPC testing is particularly important for commercial/NDI acquisitions, especially in cases where design information and TDPs are not available for review and evaluation.

(6) *Test incident reports.* Test incident reports (TIRs) involving corrosion or other material deterioration provide early indication of potential CPC problems. Each requires follow-up to determine that the cause of the problem has been identified and corrected. This applies to all such TIRs, not only those that impact performance, but those involving “cosmetic” or “incidental” corrosion as well. The latter can result in a maintenance burden when the item is fielded.

(7) *Materiel release for issue.* Supporting data packages for materiel release of first-time procurements should include a comprehensive summary of the CPC activities on the item.

(8) *Predictive surveillance.* Predictive surveillance should be utilized to characterize failure mechanisms, predict failure rates, and determine storage life of materiel. New items/systems should plan for involvement of predictive surveillance analysis of new components and the system to provide up-front information on potential failures that could occur during fielding or storage. Results should be used to upgrade system requirements to prevent future failures.

## 6-17. Survivability

a. This section assists CBTDEV and MATDEV by providing guidance and procedures for attaining Soldier and system survivability goals and objectives as required by DODI 5000.02, DODI 8500.01, AR 25-2, and AR 70-75.

b. DOD policy requires that survivability against the full spectrum of battlefield threats found in the various levels of conflict be considered, in an integrated manner, in all systems acquisition programs, regardless of ACAT level. Examine information systems, especially those integrated into weapon platforms, throughout the development cycle, to include post-fielding upgrades. Design munitions to be survivable against the threat of unplanned stimuli since insensitive munition design enhances overall system survivability. Survivability is not restricted to hardware and software, but includes Soldier and force survivability. Soldier survivability is the 7th domain of HSI. Survivability requirements are addressed for all new system developments, commercial/NDI, and for those modifications that affect a critical survivability characteristic. After Milestone B, threat and mission changes may trigger a reassessment of survivability requirements. Under unique circumstances, policy provides for exemptions to survivability requirements and waivers to survivability criteria (see AR 15-41). The MATDEV, in coordination with the CBTDEV, provides evidence that the survivability requirements have been met; however, the MATDEV bears final responsibility and reports system progress to the MDA.

c. The survivability philosophy is based on incorporating requirements into the planning and execution of all aspects of a system's acquisition life cycle, beginning with the earliest phases. Initial survivability requirements are addressed for all new system developments and for those modifications that affect a critical survivability characteristic. Survivability requirements are given for commercial/NDI as well as for developmental items, to support commercial/NDI acquisition decisions. Threat changes and mission changes also trigger a reassessment of survivability requirements.

d. Planning for, and achieving both Soldier, weapon system, and information survivability under battlefield conditions is a continuing process during development, requiring a concurrent engineering approach and a broad range of technical expertise. CBTDEVs and MATDEVs should aggressively obtain system survivability support from Army activities and from industry. CBTDEVs coordinate the survivability aspects of requirements with the appropriate activities to ensure that the requirements are reasonable and attainable. The MATDEV plans for survivability (both Soldier and system) at the beginning of the program. The focal point for technical survivability support is the ARL/SLAD and, for advice and support concerning insensitive munition survivability technologies, is the U.S. Army Defense Ammunition Logistics Activity (DALA). Bringing both SLAD and DALA into the program early enables survivability design issues to be identified and addressed most effectively, reducing the likelihood of these factors becoming major cost drivers. The MATDEV consults the testers and independent evaluators for the program early in the survivability effort so that test and evaluation issues can be identified and addressed in a timely manner.

(1) *Requirements.* The threat and operational environment stated in ICDs guide preliminary survivability planning. The program's capabilities document includes survivability thresholds and objectives and states if the need is mission critical. Per AR 70-75, program survivability against NBC contamination and nuclear/high altitude electromagnetic pulse (HEMP) effects is required for all mission critical systems. AR 70-75 and AR 25-2 defines survivability (Soldier, weapon systems, and information systems) and information assurance requirements, identifying in general terms the threats to the system, based on the STAR, including conventional ballistic; electronic warfare (EW); information warfare (IW); nuclear weapons effects; smokes and obscurants, to include their potential anti-material effects (abrasion, corrosion, coating of optics); NBC contamination; electromagnetic environmental effects (E3); and advanced threats, such as directed energy. The requirements process will also address a munitions requirement to withstand unplanned stimuli that may be encountered throughout the operational and logistical life of the item. Munition survivability design will be consistent with requirements and with the goal of achieving the least sensitive munition design. This will include the ability of the system to withstand the effects of such threats as sympathetic reactions, bullet impact, fast and slow fire, and other threats identified by the threat hazards assessment (THA).

(2) *Survivability planning.* Survivability requirements for both Soldier and system impact the acquisition strategy. The acquisition strategy for an Army system includes a survivability strategy; carefully developed by the MATDEV in coordination with the CBTDEV, the tester, the independent evaluator, RDECs, the ARL/SLAD, and the Munition Vulnerability Assessment Panel (MVAP). SLAD is the Army activity charged with maintaining the technical expertise to advise the developmental community on the effects of all threats on Army materiel. The DALA and MVAP in conjunction with the Army executive agent for insensitive munition (AEA-IM), advises the Army development community of technologies that address munition threat hazards. Survivability planning for an acquisition program includes—

(a) An intelligence assessment of the threat to the mission(s).

(b) For munition systems, a THA that addresses the operational and logistical life cycle hazard posed by unplanned stimuli.

(c) A review of doctrine, training, leader development, organization, and technical solutions, or features that mitigate the threat.

(d) A risk assessment of the ability of the materiel to meet mission requirements in the operational environment.

(e) Assignment of survivability (both Soldier and system) and insensitive munitions goals in the context of the survivability of other systems of the force.

(f) Investigation and development of concepts, techniques, and solutions that can be used to enhance materiel survivability.

(g) A determination that the program has an adequate information assurance strategy that is consistent with DOD and Army policies, standards, and architectures for information operations.

(3) *Multiple solutions.* Designing-in survivability early is the most effective way of achieving desired goals. Survivability planning includes consideration of doctrinal, tactical, and training fixes or enhancements, as well as hardware and software solutions. Judicious use of risk assessment, modeling and simulation, and THA, with an integrated survivability analysis across the spectrum of battlefield threats is key to the tradeoff process. Options are assessed in the tradeoff analysis and selected options are incorporated into the AoAs.

(4) *Program execution.* The survivability of the system is directly related to the early planning and incorporation of appropriate technology and design considerations. Design considerations are critical for systems with NBC contamination and nuclear/HEMP survivability requirements. The principal methods by which the MATDEV can drive the system design in the desired direction are the RFP, system specification, the source selection process, and the design review process.

(a) *Request for proposal.* Critical survivability characteristics should be addressed during the MATDEV crosswalk between the RFP and the program's capabilities document. The CDRL should be coordinated with appropriate Army technical experts to ensure that all data requirements are satisfied.

(b) *System specification.* Survivability should be explicitly included in the specification and SOW. System specification should clearly identify the survivability performance requirements in (quantifiable) engineering terms and not in battlefield operational terms. In addition, the system specification should also contain a specific method by which the Government determines compliance with each survivability requirement (for example, quadripartite standardization agreements, allied engineering publications, and so forth).

(c) *Source selection process.* The source selection plan (SSP) and the RFP specify what survivability information must be part of the contractor's proposal and the relative importance of the survivability information in the evaluation process. Source selection boards should use Army survivability experts for assistance and advice in the review and evaluation of contractor's proposals, because of the complexity and subtlety of survivability issues.

(d) *Design review process.* Design reviews should include presentations by Army survivability experts on the required survivability analyses and status of compliance with each survivability requirement (for example, NBC contamination, nuclear/HEMP, E3, EW, and so forth).

(5) *Survivability analysis.* Survivability analysis is a process that starts during the TD acquisition phase and continues throughout the life cycle of the system. Survivability analysis relies on M&S results, backed up by the necessary confirmation lab and field investigations and experiments, to ensure that items developed are ready for test and evaluation. The M&S conducted early in the development will save time and money when systems are field tested and evaluated later in the acquisition process. They will also expand the Army's knowledge of survivability mechanisms and characteristics. Survivability analysis will be integrated over the full spectrum of battlefield threats to ensure that synergistic threat effects are adequately addressed. Developers will—

(a) Consider survivability with the other critical system characteristics. Tradeoffs will typically be required. Greater lethality provided to a system will thus increase survivability by destroying threat systems before they can have effect. The balance of survivability, lethality, deployability, and sustainability must be maintained for effective mission accomplishment.

(b) Enhance survivability against the array of different threats by using synergism among survivability mechanisms. For example, armor, jammers, smoke, obscurants, and insensitive munitions can work together to increase survivability against smart weapons. Survivability in each discipline (for example, EW) cannot be considered in isolation, but must be considered as part of an integrated survivability strategy.

(c) Obtain clarification early in the acquisition process, as necessary, of the nuclear survivability criteria, HEMP criteria, and NBC contamination survivability criteria for mission critical systems from the U.S. Army Nuclear and Chemical Agency.

(d) Ensure appropriate survivability analyses and THA are conducted as the program progresses, and plan for the use of analytic methods, M&S, hardware-and-Soldier-in-the-loop modeling, and experimental assessment.

(e) Ensure survivability is reanalyzed when there are significant modifications of the materiel, the mission of the system changes, or there is a significant change in the threat or system replenishment. This is of particular importance with respect to the IW threat. The rapid pace of software upgrades/modifications in support of system development as well as the parallel pace and low cost associated with the development of computer network attack (CNA) exploits, requires that periodic vulnerability/survivability assessments be conducted in order to mitigate and/or quantify risk associated with any identified IW vulnerabilities. The digitization of the Army, in which tactical automated information systems (TAIS) are

networked and prevalent throughout the battlefield, has elevated the requirement to continually evaluate the IW threat against current system software/hardware configurations to determine the impact on system vulnerability/survivability. This becomes more critical in the digitized battlefield in that the vulnerability/survivability of a system to an IW threat can serve as the entryway to which the vulnerability/survivability of the associated tactical network and/or force structure may be negatively impacted.

(6) *Test and evaluation.* The Army independent evaluators ensure that survivability issues are addressed in the SEP and test design plans. These plans form the basis for complete and thorough coordination of all survivability test planning. M&S is used extensively, especially in those cases where obtaining the required data may be impossible due to regulatory or environmental restrictions. The T&E WIPT may include a survivability subgroup. This subgroup could also serve as the live fire test and evaluation subgroup, and is composed of members from the threat community, independent evaluators, SLAD, testers, MATDEV and CBTDEV. Independent evaluations include the relationship of test results and modeling with the program's capabilities document. The independent evaluation includes the impact of the system on Army organizations, operational effectiveness, and operational sustainability, as well as the technical system performance required by the capabilities document. See AR 73-1, DA Pam 73-1, and MIL-STD 2105D for detailed survivability test and evaluation guidance.

(7) *Survivability review process.* Survivability of the system and Soldier in the context of systems effectiveness is reported at all milestone reviews and at appropriate IPRs. The Army independent evaluators, as well as cost and programmatic analyses from the MATDEV support the acquisition decision process. Sources of data for evaluations include the SLAD technical analyses, insensitive munition data bases, modeling and simulation, RDEC experimentation and studies, ATEC, contractor test reports, the AoA, studies on similar systems, and existing data bases. The Army Test and Evaluation Executive provides assistance to the MATDEV in resolving survivability issues within the context of the overall systems effectiveness as reflected in the MIPS. The Director, Assessment and Evaluation (DA&E) assesses the program's survivability risk within the framework of the overall system performance assessment using input from the developmental independent evaluator and MATDEV in preparation for key milestone reviews at the DA/OSD level. The Army Test and Evaluation Executive assesses the survivability findings and test results within the context of overall suitability and effectiveness. The Army Executive Agent for Insensitive Munition/ASA (ALT), assisted by DALA and the MVAP, assesses munition response to unplanned stimuli, and the resulting impact on system survivability.

(8) *Deviations and waivers.* The ASA (ALT); DCS, G-1 HSI office (for Soldier survivability); and the DCS, G-3/5/7 are joint approval authorities for waivers of survivability characteristics. The AAE approves waivers for munition survivability relative to insensitive munition/unplanned stimuli requirements. Waivers of the unplanned stimuli requirement for a munition are subsequently validated by the JROC, through the J-8/Operational Requirements Branch. Additionally, the DCS, G-3/5/7, per AR 15-41, serves as the sole approval authority for proposed modifications or waivers to nuclear hardening criteria, NBC contamination survivability criteria, and related testing procedures for materiel used by the Army. The U.S. Army Nuclear and Chemical Agency (USANCA) has a special role in the waiver process for nuclear effects and NBC contamination survivability criteria, as described in AR 15-41. All waiver requests involving nuclear hardening/HEMP and NBC contamination survivability criteria must be submitted to USANCA prior to Milestone B (or Milestone C if entering the acquisition process at that point). Current Army directives provide particular waiver chains for live fire test and evaluation, and software reprogramming of certain systems.

(9) *Survivability sustainment.* Survivability must be maintained throughout the system life cycle. Maintenance actions, replacement of parts, modifications (to include information system hardware and software modifications), and other life cycle changes trigger reassessment of system survivability and munition sensitivity. Parts must be replaced with others of equal survivability characteristics.

(a) *Life cycle surveillance and maintenance.* The MATDEV includes life cycle surveillance and maintenance of the system survivability features in the supportability strategy (SS). This plan ensures that survivability design features are adequately described in engineering drawings and design analysis reports, and ensures that the spares, replacement parts, sub-systems, components and re-procurement of systems are functional and have comparable or better survivability characteristics than the original parts. Specifically, for systems that incorporate hardening in order to meet the survivability requirements, detailed life cycle hardness assurance, maintenance, and surveillance (HAMS) programs are incorporated into the SS. These programs document design details of survivability features, identify the critical parts and processes and describe the cautions and procedures to be used during regular maintenance and repair to assure survivability (for example, nuclear and NBC survivability) is maintained and verified in deployment.

(b) *Modification and upgrade.* The addition, removal, or replacement of materiel (either hardware or software) in a weapon system or information system, because of mission change, threat change, producibility, or cost considerations, can significantly affect survivability characteristics. For example, modifications are evaluated with respect to the overall survivability effect. Even if a modification directly increases one aspect of survivability (for example, conventional vulnerability), the other aspects (for example, signature or NBC) are also addressed.

## 6-18. Standardization

a. The Army Standardization Program (ASP) is conducted under the authority and scope of the Defense Standardization Program (DSP). The DSP is required by 10 USC 2451-2457. DODD 5000.01 and DODI 5000.02 recognize the DSPs function as an enabler of interoperability, a key element of acquisition strategy. DOD 4120.24-M provides policy guidance and procedures for effective standardization. The ASPs role in acquisition is described in AR 70-1.

b. The DSPs procedures ensure proper documentation of systems engineering decisions concerning the qualitative requirements and attributes of Army materiel: systems, subsystems, equipment, materials, components, and parts. The resulting standardization documents are essential to the design, development, production, inspection, application, and delivery of systems and items of supply. The process for developing, coordinating, and promulgating standardization documents is prescribed in MIL-STD-961E, MIL-STD-962D, and MIL-STD-967.

c. Standardizing in acquisition and procurement can garner the following benefits:

(1) Access to the commercial industrial base is gained by addressing the Army's materiel needs to industry using performance-based requirements in military performance specifications, non-Government standards, or commercial item descriptions.

(2) Obsolete technology can be replaced with more capable commercial technologies to increase the Army's operational readiness and reduce life cycle costs.

(3) Administrative and production lead-times and the cost of repetitive testing are reduced by pre-qualifying suppliers and their products.

(4) Logistic support of weapon systems is improved by reducing the variety of items of supply and removing obsolete and redundant items.

(5) Joint interoperability of networks, equipment, and materiel among Army systems and with other military departments and defense agencies is increased.

(6) Multinational interoperability of networks, equipment, and materiel among U.S., allied, and coalition forces is increased through international standardization agreements (ISA), namely NATO Standardization Agreements (STANAGs) and the American, British, Canadian, Australian (ABCA) Armies standardization program Standards. (See AR 34-1.)

d. It is DOD policy to use commercial products, practices, and procedures to the maximum extent possible and to obtain access to them by stating military requirements in terms of form, fit, and function. The order of preference for using specifications and standards to satisfy program needs is:

(1) Documents developed under the consensus procedures of private sector standards organizations (Non-Government Standards Bodies), such as the American Society for Testing and Material (ASTM), SAE, ISO, and the Institute of Electrical and Electronics Engineers (IEEE).

(2) Commercial item descriptions (CIDs) and Federal specifications and standards.

(3) Military performance-type specifications and standards used to define form, fit, and function.

(4) Military program-unique specifications that define an exact design solution.

e. Use of performance-based requirements affects new and existing programs at all program acquisition milestones and for all acquisition categories. Stating requirements in performance terms allows the Government to focus on the essential characteristics of the delivered product or service, thereby minimizing the inspection and assessment milestones otherwise required in a design solution procurement.

f. The DOD single stock point (DODSSP) for military specifications, standards, and related publications makes documents available electronically via the Acquisition Streamlining and Standardization Information System (ASSIST). In addition to specifications, standards, handbooks, qualified product lists (QPL), ISAs, and publications, the ASSIST provides Standardization Directories (SD) on various topics. An example is the SD-1, which lists organizations with standardization responsibilities and their points of contact. Documents in the ASSIST database can be downloaded free of charge from the DODSSP Web site, <http://dodssp.daps.dla.mil/>. Policy documents referenced in this section can be accessed on the DSP Web site, <http://www.dsp.dla.mil/>.

g. The U.S. Army Standardization Executive (ASE) resides at AMC. The ASE point of contact for ASP related questions is the Army Standardization Manager, DSN 656-9234 or COM 703-806-9234. The Deputy Assistant Secretary of the Army for Defense Exports and Cooperation (SAAL-NC) is the Army's responsible official for materiel and net-centric STANAGs and ABCA Standards, DSN 425-8086 or COM 703-588-8086. Per AR 70-1, each Army acquisition organization must appoint a Standards Executive to assist the ASE. The Standards Executive—

(1) Promotes the Army Standardization Program within their organization.

(2) Serves as an advisor to the local acquisition review process.

(3) Certifies military specifications and standards as performance-based.

(4) Ensures that DOD and Army Standardization policies and procedures are applied.

## Chapter 7 Information Superiority

### Section I

#### General

#### 7-1. Introduction

The information provided in this chapter is intended to augment the policies of AR 70-1.

#### 7-2. Intelligence support

See paragraph 1-26 for information on program protection.

### Section II

#### Information Interoperability

#### 7-3. Intra-Army interoperability

*a. Introduction.* Information systems are extremely complex and require appropriate interfaces and data exchange requirements to ensure interoperability between Army systems. The intra-Army interoperability certification (IAIC) process has been established to validate communications/data interfaces for Army operational through tactical-level C4I systems. All Army C4I systems regardless of ACAT must participate in the IAIC process. The testing conducted will certify horizontal and vertical interoperability of ALL Army systems. This will also allow for a proper transition of new IT systems into the Army's operational through tactical-level C4I systems framework. PMs and other program officials will program and budget funding for intra-Army interoperability testing. Intra-Army interoperability testing and certification is addressed in the individual program TEMP or in a test concept document and submitted to the Director, Whitfill Central Technical Support Facility (CTSF) (SFAE-C3S-CTF), Stop 57, Trailer 1, Fort Hood, TX 76544.

*b. Definitions.*

(1) *IAIC.* Confirmation that the candidate system has undergone appropriate interoperability testing and that the applicable standards and requirements for survivability, compatibility, interoperability, and integration have been met.

(2) *Interoperability.* The ability of the systems, units, or forces to provide and accept data, information, materiel, and services to and from other systems, units, or forces and to effectively interoperate with other U.S. Forces and coalition partners.

(3) *Operational through tactical-level C4I.* Information systems designed to support from Army Forces headquarters down to the squad level.

*c. IAIC waivers.* Requests for waivers are processed on an exception basis. Only C4I systems at the tactical through operational-level that do not interface with any other Army systems will be favorably considered for waivers. Waivers are granted for a maximum of twelve (12) months or less to allow HQDA to review any changes in the system that may impact on intra-Army interoperability. Requests for waivers will be routed as early as possible, but no later than 6 months prior to the date they are required.

(1) Waiver requests will go from the PM; through his PEO; through the TCM; through the HQDA System Integrator; through the Director, Whitfill Central Technical Support Facility (SFAE-C3S-CTF), Stop 57, Trailer 1, Fort Hood, TX 76544; to the CIO/G-6 (SAIS-IOE), 107 Army Pentagon, Washington, DC 20310-0107. All waiver requests must be approved by the CIO/G-6.

(2) A PM requesting a waiver from IAIC must address the following issues:

(a) Why is the waiver required?

(b) What is the impact on the Army Battlefield Command System (ABCS) if this waiver is approved (in other words, who/what can the platform interface with or not interface with)?

(c) What systems/software versions are to be waived?

(d) What pieces of equipment are involved in this waiver?

(e) What is the operational risk if this waiver is not approved?

(f) The period of time for which the waiver is required (not to exceed 12 months).

(g) What actions will you take to certify your system once this waiver expires?

(h) What date will the system go to the CTSF to certify the waived system (this date will not exceed 12 months from the date the waiver is effective, not the date the waiver is signed)?

(i) Does this waiver impact joint interoperability?

- (j) Does this waiver impact allied interoperability?
- (k) What risks will the CIO/G-6 and the Army be taking by approving this waiver (in other words, who/what can the platform interface with or not interface with)?
- d. *IAIC responsibilities.*
  - (1) The CIO/G-6—
    - (a) Serves as the intra-Army interoperability certification authority. The CIO/G-6 may delegate certification authority to the system MDA. All certification actions will be returned to the test facility for distribution and record keeping.
    - (b) Approves the CTSF test requirements and criteria for the intra-Army interoperability testing.
  - (2) The DCS, G-8 is the approval authority for interoperability changes to a base-case system. A base-case system is a system that belongs to a planned or already fielded system of systems baseline of programs and warfighter capabilities as defined by the software blocking policy and process. Changes in the base-case system will follow the requirements for the software blocking policy as established by the DCS, G-8 (DAPR-FD). Contact the System of System Oversight Council Secretariat at [swblocking@hqda.army.mil](mailto:swblocking@hqda.army.mil) for additional information.
  - (3) The PM's program and budget funding for interoperability testing. The TCM (or their equivalent for programs with no assigned TCM), in coordination with the PM, will provide the CTSF with a set of approved test requirements and criteria for intra-Army interoperability testing. Intra-Army interoperability testing and certification will be addressed in the individual program TEMP or in a test concept document.
  - (4) The CTSF, operated by PEO Command, Control and Communications Tactical (PEO C3T) and located at Fort Hood, TX; is identified as the intra-Army interoperability testing facility to perform the communications/data interfaces testing. CTSF testing in support of the IAIC process will not duplicate or limit testing conducted by the Joint Interoperability Test Command (JITC), ATEC, or other test activities. The CTSF can coordinate with other test activities to conduct IAIC testing at locations other than Ft Hood, Texas, when CTSF resources cannot support the test. The CTSF conducts the required IAIC testing and provides the test results to the certification authority, the CIO/G-6 (SAIS-IOE-A).

#### **7-4. Joint interagency and multinational interoperability**

- a. Only the JITC, achieved during Milestone A certification, certifies that a system has achieved JIM interoperability of all DOD systems. Interoperability is not a static state that can be achieved simply by the satisfaction of technical requirements. Total interoperability is an ideal condition that can be approached but never totally achieved because of the dynamic nature of military operations and C4I acquisitions. As the PM acquires IT systems, the focus is on determining the degree of integration and interoperability with the Global Information Grid.
- b. The C-E LCMC SEC is mandated to serve as the Army participating test unit coordinator (APTUC), and in that capacity supports interoperability testing of all C4I systems conducted by the Defense Information Systems Agency (DISA), JITC for system certification and re-certification. The C-E LCMC SEC APTUC arranges and coordinates all JIM interoperability testing with the DISA, JITC and coordinates the participation of all Army elements and systems per JITC Plan 3006 and AR 73-1. Traditionally, networkiness requests are submitted at or around Milestone C. In the future, the goal is to receive networkiness requests in the initial Milestones, actively participating with the program office in the beginning. This will ensure minimal impact to the funding and fielding schedule to be proactive versus reactive during implementation.
- c. The JITC addresses the Joint C4I interoperability mission via three-phased approach. The first phase is the standards conformance testing of C4I systems with the objective of assessing the degree of compatibility with the technical framework established by the appropriate DOD IT Standards Registry (DISR accessible at <https://disonline.disa.mil/dsr/index.jsp>) standard. The second phase is the interoperability testing of C4I systems with the objective of assessing the degree of interoperability among the C4I systems. The third phase is the verification of the interoperability certifications in the operational environment with the objective of assessing the degree of integration of the C4I systems within the joint operational networks.
- d. The JITC supports the warfighter in their efforts to manage information on and off the battlefield. This includes:
  - (1) Being an independent operational test and evaluation/assessor of the DISA, and other DOD C4I acquisitions.
  - (2) Identifying and solving C4I and combat support systems interoperability deficiencies.
  - (3) Providing C4I JIM and combined interoperability testing, evaluation and certification.
  - (4) Bringing C4I interoperability support, operational field assessments, and technical assistance to the Combatant Commanders, Services, and Agencies.
  - (5) Providing training on C4I systems, as appropriate.

#### **7-5. Open systems design**

An open systems approach is a business approach for developing affordable weapons and C4I systems. This approach chooses from among open system; de facto; and Government specifications and standards; and commercial practices,

products and interface standards to provide quick access to technologies that maximize combat effectiveness under a given cost constraint. Open systems facilitate improving performance and reduced overall systems life cycle costs by exploiting advances being made by industry in the fields of commercial electronic and software products.

*a.* Follow an open systems approach for all system elements (mechanical, electrical, software, and so forth) in developing systems. This business and engineering strategy consists of choosing specifications and standards adopted by industry standards bodies or de facto standards (set by the market place) for selected system interfaces (functional and physical), products, practices and tools. Selected specifications are based on performance, cost, industry acceptance, interoperability requirements, long term availability and supportability, upgrade potential, and best value over the life cycle of ownership. For many Army software-intensive systems, the industry standard most appropriate for acquisition and development is EIA/IEEE J-STD-016 (used as guidance only), which replaces MIL-STD-498, DOD-STD-2167A, and DOD-STD-7935A. IEEE/EIA 12207 is a high level standard that provides useful guidance for developing and evaluation an organization's common software process consistent with industry international standards; however, a sound implementation goes beyond just "compliance" with 12207 alone, and depends on other more detailed practices and standards such as EIA/IEEE J-STD-016.

*b.* For all C4I systems, information systems, and weapon systems that must interface with C4I systems or information systems, mandatory guidance concerning architectures, interfaces, and data is contained in the DISR. The DISR contains Army requirements in the Army organization requirements bin (AORB) and is aligned with joint requirements contained in the DISR for net-centricity, interoperability, and reuse (software, hardware, commercial products, and government off the shelf (GOTS)).

*c.* The standards mandated by the DISR are followed when developing any systems that produce, use, or exchange information electronically. The DISR will be used by anyone involved in the management, development, or acquisition of new or improved Army systems.

*d.* Within the Army, the Vice Chief of Staff, Army (VCSA) and the AAE have jointly made each MDA, ACOM, PEO, PM, ATD Manager, and JCTD Manager responsible for compliance with the DISR. PMs will comply with the DISR in order to ensure that products meet interoperability, performance, and sustainment criteria. CBTDEVs will use the DISR in developing requirements and functional descriptions. Battle Labs will use the DISR to ensure that the fielding of their "good ideas" is not unduly delayed by the cost and time required for wholesale re-engineering to meet interoperability standards. Army Staff Principals will ensure that systems belonging to the HQDA and HQDA Field Operating Agencies (FOAs) comply with the DISR.

*e.* In order to fully achieve the Future Force vision of total, seamless integration and synchronization of military power, the Army must achieve and maintain interoperability across a continuum of several dimensions at once—

- (1) Among battlefield weapon systems, sensors and shooters-tanks, aircraft, unmanned aerial vehicles;
- (2) Among command, control, communications and intelligence (C3I) and support systems;
- (3) Along the vertical and horizontal dimensions of organizational and command structures;
- (4) Across the Joint dimension among Army, Air Force, Navy, United States Marine Corps, Joint Chiefs of Staff (JCS)/Combatant Commanders, and the DISA at the lowest practical echelon;
- (5) Across the power projection dimension—from the sustaining base forward to the Company Command Post; and
- (6) Across the time and technology generation dimension—to achieve backward and forward compatibility and interoperability.

*f.* The DISR supports the Army's needs over all these dimensions. A system is DISR compliant if the system's technical view (TV-1) contains DISR mandated IT standards. DISR emerging or retired standards can be included in a TV-1 with a CIO/G-6 granted waiver. Progress assessment towards compliance occurs through a migration strategy and a planning process that considers net-centricity, interoperability, operational, schedule, resource issues, and risks that affect overall system development and determine the best approach for satisfying a validated user requirement. TV-1 compliance assessment occurs during a system's Milestone B and C reviews. (The CIO/G-6 approves TV-1s included in systems' JCIDS documentation prior to seeking Joint staff approval.)

## **7-6. Information support plan**

*a. Information support plan preparation.* The MATDEV prepares an Information Support Plan (ISP) in accordance with DODI 5000.02 and Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6212.01. The ISP will focus on information assurance, interoperability, supportability, and sufficiency. (See CJCSI 6212.01 for definitions.) Programs of all ACATs, including IT systems, National Security Systems (NSSs) (see definition in CJCSI 6212.01), and all infrastructure programs, are required to prepare an ISP if they in any way connect to the communications/information infrastructure. The exceptions are those programs not required to have a net-ready KPP in their capabilities document. If the Joint Staff has waived the requirement for a net-ready KPP for the capabilities document, then the program may be granted a waiver by the MDA and not be required to prepare an ISP.



(1) Programs that are required to prepare an ISP must have an ISP in place by program initiation (typically MS B) and revisions incorporated as the program matures. ISPs are to be kept up to date throughout the acquisition process and will be formally reviewed at milestone decisions for each increment in an evolutionary acquisition, at decision reviews, as appropriate, and whenever the concept of operations or IT, including NSS, support requirements change.

(2) The MATDEV works with the CBTDEV and other affected organizations to prepare the ISP prior to submitting to CIO/G-6 for review. The ISP must be submitted nine (9) months prior to any major MDR to accommodate Army review prior to OSD/J6 review. The Army review process will include review by all Army organizations having a vested interest in ISPs or having an interface with the subject program. Army review will be completed at the appropriate level(s) prior to submittal to ASD (NII) (ACAT I and special interest programs) or the J6 (all other programs). Upon completion of the ASD (NII) or J6 review process, the resulting revised ISP is submitted to CIO/G-6 for approval signature. The coordination process for ISPs will take an average of nine (9) months to complete; therefore, PMs are encouraged to begin it early.

*b. Integrated architecture.* The integrated architecture provides detailed information exchanges and systems data that document and highlight major features of the system that may result in new C4I requirements. ISPs provide a robust structure to identify, plan, and track C4I support issues. As new details supporting the concept of Joint operations unfold, it will be incorporated into the ISP. Operations expected to facilitate Joint communications are included in this section.

*c. Bandwidth capacity.*

(1) Since netcentric operations are driving both business and weapon systems, ISPs will include projected bandwidth usage that includes both training and deployment requirements for a two year period. Bandwidth planning down to the unit/garrison level needs to be programmed a minimum of one year in advance in accordance with the DISA Enhanced Planning Process. Advanced bandwidth planning will enable appropriate bandwidth capacity availability at the time of fielding.

(2) The PMs must consider the factors at figure 7-1 when assessing bandwidth requirements.

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1. Identify the portion of the traffic that the application will place on the Installation Campus Area Network (ICAN) and the Department of Defense Information Network (DODIN).
  2. Determine the traffic characteristics of the application. Consider:
    - a. Per-client transaction characteristics (transactions per unit of time, size per transaction, critical processing times).
    - b. Per-server transaction characteristics (transactions per unit of time, size of transaction, critical processing times). Transit locations of transactions (client to server and server to server).
    - c. Locations and numbers of servers associated with application.
    - d. Locations and numbers of clients associated with application (backup/bulk data transfer size/frequency/time/from-to locations).
    - e. The extent to which the application will employ web services.
    - f. Whether the application is hosted at or front-ended by Army Knowledge Online or a Defense Information Systems Agency Enterprise Computing Center.
    - g. Whether the application utilizes data transport services other than the Department of Defense common user network. Identify the type of transport required for the application to work, for example fiber optic, satellite, wireless or other transport methods.
  3. Identify any Quality of Service requirements for the application.
  4. Identify if use of non-Internet Protocol technology, such as Asynchronous Transfer Mode, Time-division Multiplexing, or Circuit Switched is required for the application to work as intended.

Figure 7–1. Bandwidth capacity considerations

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### 7–7. Army networthiness

*a.* Army networthiness is a process that assesses and determines if a system, appliance, or application can be supported from an enterprise, communications, and information perspective. It is a review to assess whether or not the system impacts the network and identifies any risks and vulnerabilities that the system may present to the Army Enterprise. Networthiness policy guidance is found in JCIDS documents and AR 70–1.

*b.* Any AIS program connecting to any part of LandWarNet undergoes a certification process in order to obtain a Certificate of Networthiness (CoN). For non-AIS programs, the appropriate sub-systems utilized to connect to any part of the LandWarNet obtain a CoN. The Networthiness certification process checklist and related documentation requirements can be found at the Networthiness Army Knowledge Online (AKO) web site (after logging into AKO, search for “networthiness homepage”).

## Section III

### Electromagnetic Environmental Effects and Spectrum Management

#### 7–8. Electromagnetic environmental effects introduction

This section describes the processes which acquisition personnel use to design, specify, test, evaluate, field, and maintain materiel systems that will accomplish their intended missions in their expected electromagnetic environments (EMEs) in

peace and war. Information on probable system electromagnetic environmental effects (E3) limitations is used to make informed judgments and tradeoffs supporting systems design and modification decisions.

*a.* The E3 defines a broad area of diverse phenomena caused by the radiation of electromagnetic (EM) energy from threat, friendly, and natural sources. The E3 includes the effects of intentional EM radiation as well as unintentional EM radiation, either of which may be emitted from a threat or a friendly source. A system E3 program should address any potential degradation in performance, safety, or reliability of the system in its EM environment during storage, transportation, or operation. The following five domains can categorize E3:

- (1) Electromagnetic interference (EMI) and electromagnetic compatibility (EMC).
  - (a)* Via conducted emissions.
  - (b)* Via radiated emissions.
- (2) Electromagnetic radiation hazards (EMRH or EMRADHAZ).
- (3) Electrostatic discharge (ESD).
- (4) Lightning effects (LE).
- (5) Electromagnetic pulse (nuclear, non-nuclear, or directed energy weapon generated).

*b.* All Army systems must be designed to operate within their EMEs without unacceptable mission or safety degradation. Requirements and criteria are determined for the domains listed above and the system is tested against these requirements and criteria to assure that it will operate in its EME. All materiel that is comprised of electronics or other elements that may be susceptible to EM radiation should incorporate E3 criteria, assessment, and testing in its acquisition program. The Army E3 program makes use of existing acquisition policies and processes to enable the acquisition team to identify system limitations that would result from EM emissions, and take actions to reduce the adverse impact on mission accomplishment.

*c.* The authority for waiving, deviating, or relaxing the E3 criteria in *a*(1)(*a*) and (*b*), above, is subject to approval by the CIO/G-6 and the Military Communications and Electronics Board. Requests for waivers, deviations, or relaxing E3 criteria are submitted through the Army Spectrum Manager in CIO/G-6. The waiver process for nuclear EMP is the exception (see para 6-17d(8)). Any member of the acquisition team may propose a relaxation of criteria for compelling reasons. Only the E3 Requirements Board (see paragraph 7-10) can recommend that a relaxation of E3 criteria is appropriate. Adequate analyses and operational impacts must accompany any request for relaxation. Additionally, if the relaxation of criteria affects system safety, a SSRA and HHA must be performed.

### **7-9. Electromagnetic environmental effects applicability**

All acquisition programs are covered by the E3 program, and, with few exceptions, require E3 consideration. Programs for which E3 consideration is not applicable are characterized by no reasonable expectation of susceptibility, for example, clothing and vehicle tires.

*a.* The MATDEV and CBTDEV have the primary responsibility to review capabilities documents of new systems for E3 considerations. They assure that appropriate E3 language is included in acquisition documents when necessary. In particular, the CBTDEV has the earliest responsibility, prior to the establishment of an acquisition program and the selection of a MATDEV. The MATDEV introduces E3 considerations into market investigations to avoid inappropriate selection of a commercial/NDI acquisition strategy, and consequent hardening effort.

*b.* Engineering personnel of the activity providing matrix support to a MATDEV screen fielded and developmental systems for applicability of E3. Culling standards are developed locally, and generally seek to identify system elements that are potentially susceptible to EM energy. Similar systems within a commodity-families of systems-will generally be grouped together for efficient use of resources, particularly for non-major and non-PEO systems.

*c.* The program also includes fielded systems found to have E3 at any time in the life cycle. (The absence of observed effects is not always a valid reason for exclusion.) The MATDEV and CBTDEV work together to find/fix combat deficiencies, and plan to reconsider the applicability of E3 in future materiel changes, threat changes, or mission changes.

*d.* Commercial/NDI comply with the E3 program by early incorporation of mission area generic E3 criteria in market investigations. Where possible, criteria should make use of commercial standards. When E3 is assessed to present an unacceptable risk to a commercial/NDI, another acquisition strategy will usually be more cost effective. While a commercial/NDI strategy may not incorporate E3 modifications, E3 criteria would be included in the system baseline.

*e.* Army materiel acquisition programs incorporate E3 by means of an E3 Requirements Board. The E3 program is executed at the lowest effective organizational level in the acquisition structure, consistent with accomplishment of the program objectives.

### **7-10. Electromagnetic environmental effects requirements board**

*a.* An electromagnetic environmental effects requirements board (E3 RB) for a program is composed of representatives of the MATDEV, CBTDEV (or user), and the appropriate AMC organization that chairs the E3 RB and provides matrix

engineering support. Experts from other Army organizations are called upon when necessary to support the members of the E3 RB. In particular, the independent evaluator and representatives of the test community are valuable adjuncts to the board. The E3 RB is not a decision-making authority: it makes recommendations to the MATDEV for execution.

b. The E3 RB identifies the range of EMEs (including the most stressful) to be encountered. It establishes the E3 criteria necessary for the system to operate without degradation in those environments. The E3 RB reviews the mission, performs a risk level trade-off analysis, and evaluates how the system meets E3 criteria. E3 RB documentation consists of conclusions and recommendations to the MATDEV, including determinations of the system's compliance with the E3 criteria, even where unresolved issues remain.

c. Each commodity develops a board charter and procedures, initiates meetings, and resolves other operational details to best suit local processes and conditions. The E3 RB meets as necessary to accomplish their function. Groups, or families, of systems may be served by common E3 RBs, which may be standing boards within commodity or mission areas.

## **7-11. Electromagnetic environmental effects criteria determination**

A comprehensive understanding of the intended operational environments the system encounters is key to fielding an effective system. Early introduction of E3 requirements reduces cost and disruption by causing the use of design features that enhance E3 performance and minimize costly hardening late in the program. In deciding the E3 criteria, the E3 RB uses mission and risk analyses and tests. It balances the system concepts, architecture, user requirements, and available design capabilities against anticipated threat and environment.

a. *Electromagnetic environmental effects criteria.* The E3 criteria denote the portions of the EME in which the system must perform without unacceptable mission degradation. The E3 RB (with advisory technical experts) uses generic E3 criteria for initial screening to consider the impact on the proposed system, as early in the process as possible. Generic criteria are mission-area-based sets of EME specifications that include environments that the materiel class is normally expected to experience. The E3 RB develops and maintains system unique E3 criteria (tailored for the system) based on the generic criteria, the anticipated mission, training, transport, and storage environments for the system, specific threat(s) or environmental factors, and other pertinent considerations. System E3 criteria are critical system characteristics, representing the minimum threshold of EME requirements.

b. *Criteria relaxation.*

(1) Relaxation of E3 criteria may be considered for approval by the MATDEV or his designated subordinate, in most cases, if an overriding benefit to the Government can be shown. An exception is the authority for waiving, deviating, or relaxing the E3 criteria in 7-8a(1)(a) and (b), which is subject to approval by the CIO/G-6 and the Military Communications and Electronics Board. Requests for waivers, deviations, or relaxing these specific E3 criteria are submitted through the Army Spectrum Manager in CIO/G-6.

(2) A request for relaxation (for compelling cause), supported by pertinent technical analysis, may be proposed to the E3 RB for adjudication and validation. The board and its technical experts are responsible for analyzing the mission and safety impact of the proposed relaxation of E3 criteria. A SSRA and HHA are also required if the relaxation is judged to affect safety. Any E3 induced inadequacy resulting from relaxation of criteria is assessed for likelihood (probability of occurrence) and impact severity, is documented by the E3 RB, and provided to the MDA. Relaxation of the E3 criteria may be recommended to the MATDEV under certain operational conditions, or when proliferation of the system provides sufficient redundancy to overcome E3.

(3) The MATDEV or his designated subordinate endorses any relaxation of criteria, and the supporting assessment. The MATDEV is also responsible for publishing security classification guidance for E3 deficiencies. E3 criteria relaxation is coordinated with the user community, as it constitutes a change of critical system characteristics. Any concerns raised by the E3 RB due to relaxation of criteria, not resolved at the working level, are submitted by the E3 RB directly to ASA (ALT).

c. *Capabilities document-to-RFP crosswalk.* The MATDEV helps the CBTDEV in developing capabilities documents. Together, they compare the resulting acquisition program baseline and specifications (used as the basis of the statement of work in the request for proposal) for consistency. This process assures that E3 requirements are translated into well-defined specifications.

d. *Coordination.* The E3 RB members from all programs under a matrix support organization should meet periodically to review and resolve common issues concerning the Army E3 policy, criteria, E3 RB charters, and processes. Continuity of process, policy, and personnel will enhance program effectiveness.

e. *Criteria changes.* The E3 RB meets whenever there may be a need to readdress and change the system E3 criteria throughout the life cycle of the system. There are three events that cause the E3 RB to reconvene as a review board and evaluate the impact on mission accomplishment: modifications; changes in mission; or, changes in threat, friendly, or natural emission. New or revised E3 criteria are then produced as appropriate.

## **7–12. Electromagnetic environmental effects assessment and tradeoff analyses**

The E3 RB is the best forum to review mission and hardening level trade-off analyses, evaluate the feasibility of meeting the E3 criteria, and submit findings and recommendations to the MATDEV. Technical experts supporting the E3 RB normally perform analyses. E3 problems found in fielded systems may require consideration as new combat deficiencies. The board chair is responsible for documenting and retaining findings as proceedings of the E3 RB.

*a. Minor effects.* Some effects may be assessed to be minor in their impact on safety and/or mission accomplishment, inflicting negligible risk. Users may be trained to understand and not react to such effects. If the E3 RB finds a risk acceptable, for whatever reason, the risk is documented by the E3 RB, endorsed by the MATDEV, and promulgated throughout the user community. Commercial/NDI acquisitions may tolerate minor effects that introduce negligible risk.

*b. Safety impact.* Consequences affecting safety must be evaluated for severity and probability of occurrence, consistent with regulatory guidance. Appropriate hardening may be incorporated in system design to resolve any such defect. The supporting safety office and the USACRC will assist the E3 RB in assessing the acceptability of safety risk. Acceptable safety risks are documented by the E3 RB, endorsed by the MATDEV, and promulgated throughout the user community.

*c. Mitigation of effects.* A technical or operational fix may be required as an outcome of the identification of unacceptable E3 risk. The MATDEV, through the E3 RB, may incorporate hardening measures, or redesign parts of the system to increase hardness. The user may be requested to reevaluate the mission in light of the impact of E3 on mission success. In that case, exclusionary areas of operations may be designated. The concept of deployment may be modified to reduce the reliance on the potentially vulnerable system.

*d. Electromagnetic environmental effects threat assessment.* The EW and electronic countermeasures (ECM, or jamming) are doctrinally defined as the deliberate radiation, re-radiation, or reflection of EM energy for the purpose of disrupting enemy use of electronic devices, equipment, or systems. The E3 originating from deliberate hostile sources is addressed by the CBTDEV and MATDEV in the STAR, and is part of the system survivability analysis process. The effects of either friendly (fratricidal) or hostile (collateral) EW are part of E3, and are addressed in the E3 criteria, as appropriate. Hardening, or other form of EW or ECM mitigation, is treated as part of E3 mitigation. Threat representation during E3 testing should be coordinated with TRADOC ADCSINT–Threats and Threat Manager for consistency of threat portrayal expected during DT/OT, OT, and LFT&E events. A DT/OT Threat Test Support Package during E3 tests by TRADOC ADCSINT–Threats and the proponent Threat Manager is required for E3 tests identified in the SEP to eliminate future OT evaluation of this subject area.

## **7–13. Electromagnetic environmental effects program planning**

The MATDEV and matrix support organizations generally enact a memorandum of understanding, or equivalent, defining E3 support to programs and ensuring adequate funding by the MATDEV. The MATDEV executes the E3 program for the system, and is responsible for definition of the expected EME, conduct and review of E3 analysis, and scheduling of system testing based upon the environment. The MATDEV establishes a life cycle control process to ensure that the system meets its E3 criteria and that the system continues to operate in its expected EME. These factors are integrated into an E3 program plan.

*a.* The policies of the E3 program (see DODI 3222.03) apply to systems acquired under all acquisition strategies including non-developmental and urgent procurements. The E3 applies to all classes of materiel, including special operations and classified programs. Joint programs require coordination of E3 criteria to ensure that Army policy is followed.

*b.* The E3 is a consideration at all milestone reviews, for all acquisition categories. The E3 RB for the system assists the MATDEV in preparation for the milestone reviews. Examples of items to be considered at acquisition reviews, in addition to requirements criteria, are:

- (1) Key program dates.
- (2) Status of all E3 in related program plans (EMI/EMC Control Plan, ILS Plan).
- (3) Status of test and evaluation for E3.
- (4) Status of existing or planned E3 related working groups, such as a T&E WIPT E3 sub-group.
- (5) Need dates for outputs of E3 related efforts
- (6) Schedules and responsibilities for E3 RB activities; and others.

*c.* E3 is included in, and generally follows the procedures for review of survivability, lethality, and vulnerability issues. (See para 6–17.)

## **7–14. Spectrum management**

Each Army system that intentionally radiates radio frequency energy must comply with national and international policies and procedures for frequency management. These systems are termed spectrum dependent. The system must be designed so that its use of the frequency spectrum complies with all regulations and standards. This applies to all systems acquired under any acquisition strategy, including non-developmental and commercial equipment, at any level of classification or

access. DODI 4650.01, DODI 5000.02, and AR 5–12 provide specific guidance regarding the acquisition of spectrum dependent equipment, the requirement for spectrum certification (completion and approval of a DD Form 1494), and compliance at Milestone B (or Milestone C if no Milestone B).

*a.* Combat developers authoring JCIDS documentation on spectrum dependent devices will coordinate with TRADOCs Frequency Spectrum Proponent Office at the U.S. Army Signal Center, Fort Gordon, GA. MATDEVs obtain frequency management guidance and supportability prior to Milestone A from the Army Spectrum Manager in the CIO/G–6. Spectrum dependent systems must obtain spectrum certification supportability, using DD Form 1494 (Application For Equipment Frequency Allocation), through the Army Spectrum Manager. The Army frequency management process and requirements for obtaining frequency supportability are described in AR 5–12.

*b.* The determination of spectrum supportability requires the examination of a variety of factors to include frequency range of operation, required throughput, justification for bandwidth optimization in the proposed architecture, required bandwidth based on recommended technology, power output, antenna gain and characteristics along with proposed area of operation (for example, CONUS only, CONUS and OCONUS, and so on) and application (fixed or mobile, host platform (for example, dismounted Soldier, airborne, TOC, and so forth)). Guidance regarding these items and more must be obtained through the CIO/G–6 Army Spectrum Manager for any spectrum-dependent system.

(1) All nations share the electromagnetic spectrum and reserve their sovereign rights to its use. The International Telecommunication Union (ITU) Radio Regulation and international agreements such as international aviation agreements and NATO agreements can affect operation of equipment in various parts of the world. Development of proposed new systems, which are to be fielded Armywide, requires extensive negotiation with other U.S. Government departments and with host nation authorities through established treaties and agreements and can take several months to complete such negotiations.

(2) To save time and resources, preliminary frequency supportability assessments are to be conducted as soon as practicable under AR 5–12 to determine if the proposed equipment will meet spectrum supportability and EMC in its intended operating environment. These assessments can take from 3–9 months to perform.

#### **7–15. Electromagnetic environmental effects test and evaluation**

*a.* The E3 test and evaluation is performed under the purview of an Army tester and an independent evaluator on samples of each system required to have E3 criteria. Analysis is used to assess the probable inter-system and intrasystem E3 hardness, as well as provide guidance and theoretical pretest predictions. DA Pam 73–1 provides details.

*b.* The intent of the E3 program is to fully integrate E3 T&E into the normal cycle of T&E. If a system is found by analysis to be particularly susceptible to E3, then accelerated or expanded testing is called for. The E3 RB assists the MATDEV by reviewing and commenting on E3 analyses, control plans, test plans, test procedures, and test reports. The E3 RB provides input to the independent evaluator for test and evaluation, and may provide a member to the survivability sub-group of the T&E WIPT.

#### **7–16. Life cycle surveillance and maintenance**

The MATDEV includes life cycle surveillance and maintenance of E3 features in the ILS planning. Using, maintaining, and testing organizations periodically reassess system E3 performance characteristics. Emphasis is placed on acquiring a system hardware design that loses E3 hardness in a gradual manner (graceful degradation) rather than all at once. Additionally, system hardware design should favor E3 features that may be monitored at the lowest operational level, and be renewable at the lowest possible maintenance level.

*a.* Systems that incorporate shielding or hardening devices in order to meet E3 criteria should have life cycle HAMS programs incorporated in ILS.

*b.* Procurement of spares, replacement parts, sub-systems, components, and reprocurments of systems also incorporate the provisions of this chapter.

### **Section IV**

#### **General Information Superiority Provisions**

#### **7–17. Information assurance**

Information assurance (IA) includes the ability to protect and defend information and information systems by assuring their availability, integrity, authentication, confidentiality, and non-repudiation. This includes providing for restoration of information systems by incorporating protection, detection, and reaction capabilities.

a. The PM must ensure the early and continuous involvement of all personnel to include the CBTDEV, users, information assurance manager (IAM), information assurance security officer (IASO), Information Assurance Network Officers (IANOs), System Administrators, data owners, certification authority, and designated approval authorities in defining and implementing information assurance requirements of the AIS.

b. The PM must ensure the continuous coordination with the ACOM information assurance program manager (IAPM) in which the systems being developed are to be demonstrated, tested and/or fielded.

c. The PM must ensure the early and continuous involvement of the CIO/G-6 information Systems Vulnerability Assessment and Protection IPT in defining, implementing, and testing of Army information systems as well as those Soldier and weapon systems integrated with Army information systems.

d. The IAIC events include conducting system-of-system IA vulnerability assessments as part of a PM's overall IA program. IAIC test event scheduling and implementation with the CTSF requires early and close coordination by PMs of Army information systems as well as Soldier and weapon systems integrated with Army information systems.

e. Although a separate entity from IA, threat computer network operations (CNO) is an important part of the threat Information Warfare operational environment and should be portrayed in support of the system under test evaluation criteria when IA is required before the T&E event. When CNO is a requirement, it should be included in the Threat Test Support Package for portrayal during DT/OT, OT, and LFT&E as appropriate.

f. Refer to AR 25-2 for further guidance.

## 7-18. Clinger-Cohen Act compliance and certification

a. *Chief information officer assessment.* Compliance with the Clinger Cohen Act is required for all systems, including IT and NSSs per 40 USC Subtitle III. This is required for all ACAT programs and any other program expending funds against an IT capability. The initiation of the CIO self-assessments begin no later than six months from a program's milestone decision reviews to ensure completion in time to support the CIO/G-6s CCA responsibilities.

(1) *Acquisition category I/II and special interest programs.* The CIO/G-6 performs the assessment for all ACAT I, II, and special interest programs. The CCA Compliance assessment is an iterative process that begins with the MATDEV completion of the CIO self-assessment located in the acquisition information management (AIM) web-based portal (<https://aim.altess.army.mil>). Upon completion of the self-assessment, the MATDEV electronically submits the self-assessment, via the AIM portal, to the next higher headquarters for review and comment. After approval by higher headquarters, the self-assessment is submitted to CIO/G-6, also via the AIM portal, for final review and comment. For each submittal, a notification report is automatically generated via AIM and sent to those designated to review the self-assessment. Collaboration between CIO/G-6 and the MATDEV will continue until all issues are closed and/or a satisfactory closure plan has been documented in the self-assessment tool. Additionally, the MATDEV must also complete the OSD-level CCA Compliance Table matrix found in DODI 5000.02, table 8 and forward the results to the CIO/G-6. When all comments have been adjudicated and the matrix provided, the CIO/G-6 will sign a memorandum verifying the program is CCA compliant. This memorandum and matrix will be forwarded to OSD Networks and Information Integration Office and Office of Acquisition Technology and Logistics.

(2) *Acquisition category III programs.* The ACAT III programs will be assessed by the MATDEV CIO or equivalent functional proponent using the same process as ACAT I/II Special Interest Programs outlined above to ensure CCA Compliance. The responsible functional proponent will submit a memorandum to the MATDEV and copy furnish a courtesy copy to the CIO/G-6 to verify that the ACAT III program is CCA compliant prior to each milestone decision or IPR.

(3) *Army Portfolio Management System criteria.* The following criteria are used to determine Army Portfolio Management System (APMS)-Army Information Technology Registry (AITR) system input eligibility:

(a) The Army is a funding source and/or primary manager (for example, Executive Service of a Joint program, with the exception of intelligence systems which are reported in the Defense Intelligence Mission Area);

(b) The item is—

1. A system of systems; or
2. A family of systems; or
3. An information system.
4. An application.
5. A network.

(c) And the item is—

1. Funded at greater than \$25,000 in any year of the FYDP across all appropriations; or
2. The commercial item/NDI software with greater than \$25,000 in customizations in any year of the FYDP; or
3. An IT investment with at least one development/modernization task funded at more than \$1M over all years of the FYDP; or sustainment over \$10M; and
4. Requires network access; and

5. Accreditable Army Information System per the DOD Information Technology Security Certification and Accreditation Process/DOD Information Assurance Certification and Accreditation Program (DITSCAP/DIACAP); and

6. The item can be reported without divulging classified information.

*b. Chief information officer certification report.* In addition to completing the CCA compliance document, all designated ACAT IAC programs require a CIO Certification Report that is submitted to the CIO/G-6 for review and then forwarded to the ASD (NII). The ASD (NII) submits the certification packages to Congress. The PM will need assistance from multiple functional areas to develop this report. The report addresses the following areas: business process re-engineering (BPR), AoA, economic analysis (EA), performance measures and information assurance (IA).

(1) The BPR and AoA sections of the report are completed by the functional proponent.

(2) The BPR identifies all business processes that were reviewed and explains how the processes were changed to improve overall business processes and mission efficiency. The decision to incorporate IT as a part of the solution to improve business processes or mission efficiency must be clearly documented.

(3) The AoA must describe in detail, all alternatives the functional proponent considered when making the decision to use an IT solution and discuss why the selected program was the preferred alternative. The discussion must include a status quo alternative. The functional proponent must explain if no alternatives were considered. The PM will prepare an EA supporting the selected alternative. The PM and functional proponent will develop quantifiable performance based measures and quantifiable outcome based performance measures. This should demonstrate that the IT investment provided a rate of return on investment that justified the cost of the IT investment and improved the business process and mission efficiency. The PM will address IA requirements to ensure the fielded system will not adversely impact the Global Information Grid.

*c. Post implementation review.* All MAIS programs require a post implementation review (PIR). The PIR is a formal review of a fielded IT/NSS investment in its intended operational environment. The PIR verifies the Measures of Effectiveness of the ICD and answers the question: "Did the Service/Agency get what it needed, per the ICD, and if not, what should be done?" After a MAIS system has been fielded, the PM works in conjunction with Army CIO/G-6 to develop a PIR plan and conduct the PIR. Once completed, the results of the PIR are provided to ASD (NII) indicating how well the system performed relative to the CIO Certification Report. The PIR takes place post-IOC after a relatively stable operating environment has been established; a typical time frame is six to twelve months after IOC.

## **7-19. Privacy impact assessment**

*a.* A privacy impact assessment (PIA) is a process for examining the risks and ramifications of using information technology to collect, maintain, and disseminate information in identifiable form from or about members of the public.

*b.* The OMB Circular A-11, Section 300, Exhibit 300, requires PIAs to be prepared for and approved by OMB for every new information technology funding request, to include new systems or modifications to systems that have privacy implications for private U.S. citizens-not including DOD employees.

*c.* The PMs of IT systems that have privacy implications will initiate the PIA process when they begin to develop a new or significantly modified IT system or information collection that contains privately identifiable information. PMs submit completed PIAs to the CIO/G-6 (SAIS-GKP). Refer to the process explained in the ASD (NII) memorandum, 28 October 2005, subject: Department of Defense (DOD) Privacy Impact Assessment (PIA) Guidance at <http://www.dod.mil/cio-nii/cio/pia.shtml>.

*d.* Although the PIA requirement excludes DOD personnel, privacy implications should be considered for all systems and collections that involve personal information in identifiable form. Refer to AR 340-21 for further information on privacy policies and procedures.

## **Chapter 8**

### **Program Decisions, Assessments, and Periodic Reporting**

#### **8-1. Purpose**

*a.* The milestone review process is applicable to all materiel acquisition programs covered by DODD 5000.01, DODI 5000.02, and AR 70-1. The appropriate review forum for an acquisition program depends upon the program's ACAT. There are three levels of program review:

(1) The DAB is the primary forum used by DOD to make recommendations to the DAE for ACAT ID programs. The DAB is supported by the DAB readiness meeting (DRM), which is a pre-briefing to update the USD (AT&L), Vice Chairman of the Joint Chiefs of Staff (VCJCS), and others on the latest program status and outstanding issues.

(2) The ASARC is the senior Army review forum for ACAT I, ACAT IA and ACAT II programs for which the AAE is the MDA. It is chaired by the ASA (ALT). The ASA (ALT) convenes the ASARC at formal milestone decision reviews



to provide information and develop recommendations for decisions. The ASARC is also convened to develop the Army's course of action on DOD MDAPs in preparation for the DAB review (ACAT ID programs) and DOD Information Technology Acquisition Boards (ITABs) for ACAT IAM programs.

(3) The IPR is the review body for ACAT III programs. The IPR provides information and develops recommendations for decision by the appropriate MDA. (An AAE IPR is required for all ACAT III programs at program initiation (typically Milestone B), at which point the AAE may delegate MDA to a PEO.)

*b.* Materiel acquisition program reviews are conducted at critical points and serve as forums to surface issues that must be resolved and to recommend appropriate action to the MDA. All system acquisition programs require a review at milestone decision points to evaluate program status and assess the program's readiness to proceed into the next acquisition phase. Other program reviews may be conducted at times other than milestone decision points when a significant and compelling program decision is required. (See chapter 10 for additional information on ASARCs.)

*c.* The decision review process should support program stability. Stability in acquisition programs is essential to satisfying identified requirements in the most effective, efficient, and timely manner. Accordingly, program funding and requirements changes should be minimized and not be introduced without assessing and considering their impact on the overall acquisition strategy and established program baseline. Affordability is a key consideration.

*d.* During the milestone review process, the MDA ensures that the views of all participating agencies are presented and considered. Disagreements between the PM and a supporting organization on the application of a functional requirement are resolved either by the program's IPTs or by the program MDA.

*e.* The MDA may waive program documentation except that required by statute. The MATDEVs request for documentation waiver should include strong rationale/justification and be provided to the MDA for decision as early in the process as possible. The MATDEV should staff waiver requests with the appropriate functional proponent prior to MDA review. Approved waivers should be documented by either a memorandum for record or ADM if requested as part of a milestone review.

*f.* The objectives of milestone reviews are to—

(1) Ensure that the Army is pursuing the most practicable path to correct or respond to a threat or operational deficiency with full appreciation of limited resources. Affordability and supportability, to include both materiel and manpower, will be constant and paramount considerations at each phase of the process.

(2) Emphasize early life cycle planning for budgetary matters, operational and human performance, environment, safety and occupation health issues, CPC, training and training support, supportability, transportability, procurement, producibility, and other driving forces to include, but not be limited to, total life cycle competition strategy and planning.

(3) Focus deliberations on issues pertinent to the milestone and ensure the MDA has a balanced assessment of the program's readiness to proceed into the next acquisition phase.

(4) Review the results of the system evaluation and, if necessary, the SER pertaining to the assessment of the system's progress toward achieving effectiveness, suitability, and survivability requirements for the milestone.

(5) Provide the MDA accurate and timely program documentation and information to enable firm decisions and clear guidance.

(6) Ensure sound tailoring of the acquisition strategy to meet the specific needs of an individual program.

*g.* The MDA reviews may end in "paper ASARCs" when all program issues have been successfully resolved to the satisfaction of all parties. This decision is usually the outcome of the Army OIPT preceding the ASARC. The prospect of a "paper ASARC" does not relieve the PM of the responsibility for completing all supporting documentation.

## **8–2. Integrated product teams in the oversight and review process**

*a.* The IPPM is a management technique that integrates all activities from product concept through production/field support, using a multifunctional team, to simultaneously optimize the product and its manufacturing and sustainment processes to meet cost and performance objectives. The process is normally implemented through the use of IPTs.

*b.* An integrated product team (IPT) is an integrated group of representatives from multiple functional disciplines working together to build successful and balanced programs, identify and resolve issues, and provide recommendations to facilitate sound and timely decisions. TRADOC forms CBTDEV working groups to develop and balance operational concepts, integrated architectures, and requirements. After requirements have been established, the CBTDEV working group transitions to the MATDEVs IPT. The IPTs may be formed at any level with appropriate leadership. The CBTDEV working group may be reconvened at a later date to refine requirements. IPTs work the cost, schedule, performance, and sustainment issues in development programs for a PM. The application of the guidance in the following paragraphs may be tailored, at the discretion of the PM, to match the scope and complexity of programs.

*c.* Additional IPTs may exist during a program/project/product's life (for example, T&E WIPT, Software IPT, Materiel Release IPT, System Safety IPT, and so forth). While the following guidance addresses some of the tasks covered by these IPTs, generally, the guidance only covers the program/project/product IPT responsibilities.

(1) The IPT membership should have complementary skills and represent all functional disciplines influencing the product throughout its life cycle. Team membership should be tailored for each product; membership stability should be emphasized. It is of utmost importance to have representation from all organizations that are potentially impacted or are involved with the product's acquisition process, to include Joint or other-Service organizations where joint interoperability may be of concern. Members should be empowered to speak for their respective organizations.

(2) An IPT may be an "advisory committee." An "advisory committee," as defined by Federal Advisory Committee Act (FACA) (5 USC, Appendix 2, Section 3), means any committee, board, commission, council, conference, panel, task force, or similar group, or any subcommittee or other sub-group therefore (hereafter in this paragraph referred to as "committee"), which is established by statute or organization plan, or established or utilized by the President, or established or utilized by one or more agencies in the interest of obtaining advice and recommendations for the President or one or more agencies or offices of the Federal Government, except that such term excludes any committee that is composed wholly of full-time, or permanent part-time, officers or employees of the Federal Government. An IPT, which includes non-government representatives, to provide an industry view, would be an advisory committee covered by FACA and must follow the procedures prescribed by the Act.

(3) For further information refer to "Integrated Product and Process Management (IPPM)", "Integrated Product and Process Development (IPPD)", and "Integrated Product Team (IPT)" topics in the AKSS.

### 8-3. Program information

*a. Definition.* Program Information is the minimum amount of information required by the MDA to make a balanced decision. Program information is divided into two categories:

(1) Descriptive information — discretionary data.

(2) Information requiring MDA approval — mandatory or statutory data.

*b. Acquisition category I, IA, and II programs.* These acquisition categories require DAE or AAE approval to proceed to the next life cycle phase. To support an Army decision, an ASARC is convened for these acquisition categories. The AAE may delegate MDA for an ACAT II program to a PEO or a direct reporting PM. In this case, the PEO, as MDA, approves the program to proceed to the next life cycle phase. (See chap 10 for additional information on ASARCs.)

*c. Acquisition category III acquisition programs.* These acquisition programs require MDA approval to proceed to the next life cycle phase. An AAE IPR is required for all programs that meet the ACAT III dollar threshold at program initiation (typically Milestone B), at which point the AAE may delegate MDA to a PEO.

*d. In-process reviews.* To support a PEO-conducted milestone decision, an in-process reviews (IPR) is convened. The following is a guide to facilitate preparation of Army acquisition programs for review by the IPR and ultimate decision by the MDA.

(1) The PMs can use similar documentation to the MIPS used for ASARCs. The MIPS (see fig 8-1) is tailored to present program information needed by the MDA to understand the program and to make an informed decision.

(2) A WIPT consisting of all of the program's stakeholders (PMs, user, testers, logistician, PEO, and so on) develops the MIPS. The primary objective of this team is to submit a document to the MDA that is acceptable to every stakeholder. The WIPT leader is either the PM or project leader. In concept, each stakeholder has the authority to make decisions and be accountable for those decisions made during this process. Where agreement is not possible, residual issues are addressed to the OIPT for resolution before the decision IPR. If resolution cannot be obtained, issues are addressed to the MDA at the milestone decision IPR.

(3) DODI 5000.02, enclosure 2, paragraph 6c(1), directs that certain core issues be addressed at the appropriate milestone. While all programs must accomplish certain core activities, how these activities are accomplished is tailored to the specific program to provide the required information to the MDA for decision. In tailoring the MIPS documentation for the milestone decision, PMs, in coordination with the stakeholders, should ensure that the following six basic questions are addressed in the ADM to support a comprehensive review.

(a) Is the system still needed?

(b) Does the system work?

(c) Are the major risks identified and manageable?

(d) Is the system fully funded?

(e) Have manpower, personnel, and training requirements been considered for their implications on end-strength and life cycle costs?

(f) Has CPC been considered for its implications on reliability, maintenance, sustainment, and life cycle costs?

(4) In line with these questions, figure 8-1 contains a series of thought provoking questions that will cause the PM to assess the acquisition program in a performance oriented fashion versus a prescribed format where information is plugged in and often redundant with other analyses. By contemplating these questions while creating the MIPS, the PM will have a standalone, streamlined decision document.

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**Core Acquisition Issues For Consideration During  
Modified Integrated Program Summary (MIPS) Preparation**

**Is the system still needed?**

- Why is the program needed?
- Has a capabilities document been approved?
- What specific capabilities are necessary?
- When do the necessary capabilities need to be introduced to the field?

**Does the system work?**

- Has the system been determined to be safe, operationally effective, suitable, survivable, and supportable?
- Have all ESOH related risks been identified and assessed?
- Has the stability of the design and the operational capability of the system been verified?
- Have alternative solutions been reviewed and why was this solution selected?
- Can the system or item be produced?

**Are program risks identified and manageable?**

- Has the system been determined to be operationally effective and suitable?
- Have alternative solutions been reviewed and why was this solution selected?
- What is the acquisition strategy to develop and/or produce the needed capability?
- Is the system or item producible?
- Are training assets in place to support institutional, NET, and sustainment training, and have Soldiers/users been properly trained to use the system?
- How will the system be sustained?
- How much will the program cost?
- Has the program's risk been assessed?
- What are the ESOH-related residual risks? Have they been accepted at the appropriate level of authority?
- What is the CAIV target for Average Production Unit Cost and average sustainment metric?
- What are the environmental costs associated with this program throughout its life-cycle?
- What are the exit criteria for moving into the next program phase?
- Has an Explosive Ordnance Disposal (EOD) publication been developed, tested, and published for explosive ordnance (and for items that could be misidentified as explosive ordnance)?
- Has an EOD publication been developed, tested, and published covering emergency ingress and downloading procedures for combat vehicles, remotely piloted vehicles, and aircraft?

**Is the system adequately funded?**

- Can it be supported?
- How much will the program cost?
- Is the program affordable and fully funded?
- Has a program baseline been developed to include Life Cycle Cost considerations?

Figure 8–1. Core acquisition issues for consideration during MIPS preparation

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(5) As the PM and WIPT create/tailor their acquisition program MIPS, it should encapsulate mandatory or statutory requirements gleaned from the following documents:

- (a) Capabilities document (CJCS 3170-series documents), STRAP, and OMS/MP.
- (b) AoA.
- (c) TEMP.

- (d) SER.
- (e) APB.
- (f) ASR.
- (g) Exit Criteria to proceed to the next milestone.
- (h) Program life cycle cost estimates (to include demilitarization/disposal and potential termination liabilities).
- (6) In addition, the MDA prescribes which discretionary descriptive information should be included in the MIPS:
  - (a) Changes in warfighter doctrine, organization, training, materiel, leadership and education, personnel, and facilities and policy (DOTMLPF-P) caused by the system acquisition.
  - (b) DISR migration.
  - (c) Defined risks/risk mitigation.
  - (d) CAIV.
  - (e) Program schedule.
  - (f) Maintenance concept.
  - (g) Cooperative/foreign opportunities.
  - (h) Environmental impacts.
  - (i) Manpower.
  - (j) Affordability.
  - (k) CPC program.
  - (l) Insensitive munitions/unplanned stimuli strategy and assessment.
  - (m) Transportability and deployability assessments/transportability engineering analysis approval.
  - (n) Independent safety assessment.
- (7) The PM obtains the CBTDEVs and all appropriate stakeholders signatures along with any letter concurrence from other stakeholders as appropriate on the MIPS before the MIPS is forwarded to the MDA staff and OIPT IPR members.
- (8) Prior to the scheduled IPR, the PM submits the MIPS with support documents to the PEO. An assessment of the program is made by an OIPT consisting of the PM, Deputy PEO/Deputy MSC Commander, PEO Division Chiefs/MSD directors, and USATEC System Team Chair. Prior to the IPR, the decision package, with OIPT program assessment, is forwarded to the MDA. The ADM is tailored to document the MDAs decision and any additional guidance associated with the decision. Approved ADMs will reside in the Virtual InSight (VIS) official programmatic document repository.

#### **8-4. Joint program management**

- a. Joint PMs (JPMs) must have maximum flexibility while organizing and managing their unique programs. Joint programs are managed through the lead DOD component's acquisition chain. Like service-unique programs, joint programs must have short, clear lines of authority. The lines of authority or reporting structure should be streamlined to best suit the needs of the program. Also, the lines of authority may change as the program transitions through life cycle phases.
- b. Although each joint program should be structured for optimum efficiency, JPMs establish general parameters that are outlined in a MOA to ensure that available resources adequately support these critical programs. Every joint program is different and the MOA should be tailored to allow maximum program flexibility.
- c. When an Army agency is designated as the Executive Agent for a joint program, the Army JPM develops and staffs a MOA that is approved by the MDA. The MOA specifies the relationship and respective responsibilities of the lead executive component and the other participating components. The MOA addresses, at a minimum, the following topics: system requirements, funding, manpower, and the approval process for capabilities documents and other program documentation. Funding guidance includes the type of funds and the means and process for fund distribution. Terms are included in the MOA addressing the topic of failure to resource the program and/or withdrawing resources by other Services and how the program will be managed in those circumstances. The Executive Agent provides for all PPBE functions. Individual components budget for their unique requirements. Unless a statute, the MDA, or an MOA signed by all components directs otherwise, the lead executive component budgets for and manages the common RDTE funds for assigned joint programs. Procurement is funded by the component in proportion to the number of items being bought by each component.
- d. The Executive Agent has the responsibility to assess, analyze, and obtain cooperation with other Services for manpower support. The manpower support provided by each participating component will be assessed through analysis and certified by written agreements (MOA or directive) early in the establishment of the program and reviewed annually. Military positions should be designated as a joint duty assignment to the maximum extent possible. The MOA states firm acquisition qualification standards (certification, Acquisition Corps experience, and so on) for joint program acquisition professionals, regardless of component. Each Service's personnel authorizations are included in the MOA. The USAASC reviews the MOA with particular emphasis on the program personnel authorizations and the program's funding process.

*e.* A designated joint program has one quality assurance program, one program change control program, one integrated test program, and one set of documentation and reports (specifically, one joint program capabilities document; one ISP; one TEMP; one APB; and so forth). Documentation for decision points and periodic reports flow only through the lead executive component acquisition chain, supported by the participating components. The MDA designates a lead OTA to coordinate all operational T&E. The lead OTA produces a single operational effectiveness and suitability report for the program.

*f.* Army JPMs or their DOD Components cannot terminate or substantially reduce participation in joint ACAT ID programs without JROC review and USD (AT&L) approval, or, in the case of joint ACAT IA programs, ASD (NII) approval. DODI 5000.02 defines substantial reduction 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 component seeking the termination or reduced participation.

(1) When designated as the lead component for a joint program, the Army will provide a board-selected PM and establish a PMO in accordance with chapter 1 of this Pamphlet. The appropriate level of management is:

- (a) Determined by the DOD MDA document assigning the Army as lead component, or
- (b) Determined by the AAE.

(2) The AAE may designate the PM as a direct reporting PM or designate a PEO to extend management oversight to the program. Except as delineated in DODI 5000.02, the PEO or direct reporting PM has the full line authority for the management of the assigned program(s) as an extension of the AAEs management oversight.

(3) Army authorizations designated to support the joint PMO will be carried on the USAASC table of distribution and allowances (TDA).

(4) The USAASC develops and issues all tasks and directions to execute the AAEs decisions regarding the establishment of a Joint PM/PMO or Army participation in a joint program. Army authorizations designated to support a Joint PMO in which the Army is not lead Component will be carried on the USAASC TDA.

*g.* The USD (AT&L) or ASD (NII) may require a 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. Army lead joint programs, other than ACAT ID or IA, will not terminate without approval from the AAE. When the Army has a participant role in a joint program, other than ACAT ID or IA, that terminates, the participant will adhere to the lead service termination policies and procedures.

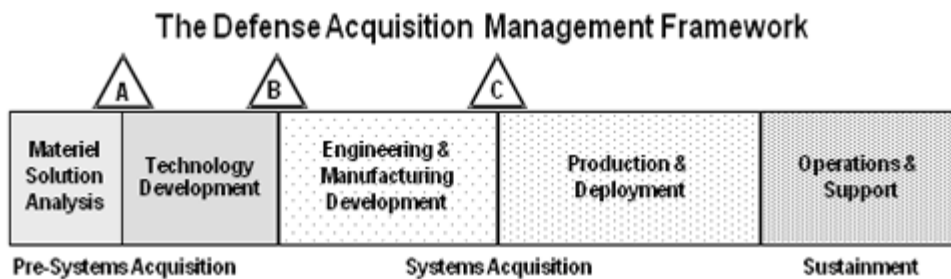
*h.* Army agencies considering involvement in another Service joint program that is past Milestone A, but pre-Milestone C, and having no formal previous involvement, will establish an MOA with the lead service, defining participation in the program. This operating agreement includes, at a minimum, funding, participation in joint milestone information preparation/endorsement and program reviews, joint program management, and joint logistics support. When an Army agency is considering involvement in another Service program that is past Milestone C and there has been no previous formal involvement, the decision to forward funds to the lead service will be supported by AAE guidance and milestone information.

## **8–5. International cooperative program considerations**

*a.* It is DOD policy to consider opportunities for international cooperative research, development and acquisition (ICRDA) in every phase of the systems acquisition process. ICRDA can reduce weapons system costs through cooperative research, development, procurement and support, while achieving interoperability amongst allied and coalition partners' weapon systems. Formulation of cooperative development programs involves resolution and harmonization of issues in such areas as required capabilities, cost share, work share, and technology transfer, and generally requires the development of a formal International or ICRDA Agreement.

*b.* In support of this policy, Army MATDEVs will undertake an assessment of the potential to conduct cooperative research, development, and acquisition for any planned systems acquisition at an early point in the systems development process (see fig 8–2). Per AR 70–41, for all new acquisition programs, this assessment will be documented in a stand-alone document known as a cooperative opportunities document (COD) or in the system's acquisition strategy. At a minimum, the COD or acquisition strategy:

- (1) Identifies any similar allied technology development or other projects in development and/or production.
- (2) Provides an assessment as to whether any existing allied technology or other projects could satisfy or be modified to satisfy U.S. Army capability requirements.
- (3) Provides an assessment of the advantages and disadvantages of a cooperative development program with regard to program timing, developmental and life cycle costs, technology sharing, cost sharing, disclosure, interoperability, and/or Multinational Force Compatibility.



FMS: Foreign Military Sales  
R&D: Research and Development

**Figure 8–2. International cooperation considerations during the acquisition process**

(4) Describes the alternate forms of armaments cooperation appropriate for the project.

(5) Recommends whether a cooperative program should be pursued.

c. There are numerous international fora and programs dedicated to discussing mutual armaments needs and cooperative opportunities. These include the NATO Conference of National Armaments Directors (CNAD); the CNADs main group for land armaments, the NATO Army Armaments Group (NAAG); the Five Power Senior National Representatives (Army) (SNR(A)); and numerous bilateral fora, such as the U.S./United Kingdom SNR(A) or the U.S.-Japan Science and Technology Forum. Additional vehicles for exploring cooperative opportunities are Defense Research, Development, Test and Evaluation Information Exchange Program (IEP), the Engineer and Scientist Exchange Program (ESEP), The Technical Cooperation Program (TTCP), and NATO’s armaments database, the Armaments Information Management System (AIMS).

d. A viable alternative to new system development is the acquisition of NDI. The foreign comparative testing (FCT) (see para 4–10) program offers a structured and funded means for program offices to evaluate the suitability of a foreign developed item for purchase.

e. As noted above, any international cooperative program requires an international agreement (IA) be negotiated and established between/among the nations involved. An IA can be in the form of a MOU; a MOA; a project agreement, arrangement, or annex (PA); or “Cooperative R&D Loan Agreement.” The IA formally commits all parties to provide resources and to carry out defined tasks. All armaments cooperation MOUs/MOAs/Loans must be developed using DOD IA generator software, and any deviations from that format must be justified and approved by HQDA DASA (DE&C). DODI 5000.02, enclosure 10, paragraph 5b, DODD 5530.3, and the DAG are the principal DOD policy documents and ARs 550–51 and 70–41 are the principal Army regulations that govern the development, negotiation, and staffing policies and procedures for ICRDA. The IA requires that following documents also be developed in support of its development, coordination, negotiation, implementation and execution:

(1) *Summary statement of intent.* DODI 5000.02 in conjunction with the DAG waives the DODD 5530.3 and AR 550–51 requirement for a TA/CP, financial statement, legal memorandum, and industrial base impact statement in support of a cooperative R&D IA; instead a SSOI is required. The SSOI summarizes and rationalizes the technological scope of

the proposed ICRD project; describes the requirement (for example, ATO, ICD, CDD, CPD) that will be addressed; provides the intelligence assessment for the project, that is a benefits versus risks and technology transfer analysis; addresses cost (both financial and non-financial); equitability; schedule; performance; and spells out any information security and technology transfer considerations, industrial base considerations and the negotiation strategy for the project. The SSOI is a U.S. eyes-only document; it serves as a framework and starting point for negotiating the cooperative R&D IA. The technology proponent or the PM in conjunction with international cooperative programs, foreign disclosure, and legal offices, develops the SSOI. Also, contact the ODASA (DE&C) (SAAL–NC) International Agreements Team for overall guidance and assistance.

(2) *Delegation of disclosure authority letter.* Per AR 380–10, the authorization to disclose and/or release CMI or controlled unclassified information (CUI) in support of any international program/agreement will be in the form of a delegation of disclosure authority letter (DDL). A DDL must be developed and approved for the disclosure or release of CMI or CUI prior to entering into discussions or consummating disclosures with any potential or actual IA foreign participants. Contact your local foreign disclosure office(r) for assistance.

(a) Per AR 380–10, the DCS, G–2 is the approval authority for DDLs that authorize the disclosure of CMI.

(b) AR 380–10 delegates authority to technical CUI proponents to develop and approve DDLs that authorize the disclosure of technical CUI. See paragraph 1–28 for guidance regarding technical CUI.

(3) *Program security instruction.*

(a) A program security instruction (PSI) details the security arrangements for the program and harmonizes the requirements of the IA participants' national laws and regulations. Using the IAs streamlined procedures authorized by DODI 5000.02 (see DAG section 11.2.1.3.2.), the ODASA (DE&C) (SAAL–NC) will lead the program manager through the considerations for, and the development of, a PSI.

(b) The PSI contains all of the security arrangements and procedures that form the security “Standing Operating Procedures” for the program executed under the jurisdiction of the ICRDA agreement. If a PSI is properly prepared (and this must be accomplished as a team effort with the representatives of the IA participants) early in a program and used in conjunction with the program DDL, export and disclosure decisions will be significantly expedited.

(c) The International Programs Security Requirements Handbook contains the Multinational Industrial Security Working Group's PSI procedures and template.

(d) If all security arrangements to be used in an international project/program are in accordance with an existing industrial security arrangement between the IA participants, a separate PSI is not required.

## **8–6. Cost analysis improvement group procedures**

a. The goal of the CAIG is to provide the CAIG Chairman with a thorough understanding of the Army cost position (ACP). This includes the assumptions, data, and analysis made to support the ACP, which is based on the CARD. The program overview includes acquisition strategy, technologies involved, inventory objectives, and operational concepts. The ACP can be a result of joint estimating or reconciliation.

b. The CAIG provides an independent cost estimate for ACAT ID programs, pre-MDAP programs approaching formal program initiation as likely ACAT ID, and for ACAT IC programs when requested by the USD (ATL). See section 4–6, *Cost Review Board*, of the Army Cost Analysis Manual (<http://www.ceac.army.mil/ce/default.asp>) for additional information.

## **8–7. Cost review board procedures**

a. The ASA (FM&C) formed the Army cost review board (CRB) to review cost estimates for major weapon and information systems. This was in response to the need for a comprehensive ACP acceptable to both the acquisition and financial management communities and to support the PPBE.

b. See section 4–6 of the Army Cost Analysis Manual (<http://www.ceac.army.mil/ce/default.asp>) for a full discussion of the CRB procedures.

## **8–8. Army Cost Analysis Manual**

Chapter 4 of the Army Cost Analysis Manual (ACAM) (<http://www.ceac.army.mil/ce/default.asp>) covers the following topics that PMs need to address during execution of their program.

a. CRB program categories.

b. CRB program reviews.

c. Preparation of the recommended ACP.

d. Cost Analysis IPT issue resolution process.

e. Documenting the ACP.

## 8–9. Cost and economic analysis procedures

AR 11–18 provides the policies and responsibilities for cost and economic analysis throughout the Army. The ACAM provides the framework for implementing the cost analysis policies set forth in AR 11–18. The Army Economic Analysis Manual provides the framework for implementing the economic analysis policies set forth in AR 11–18.

## 8–10. Army Configuration Steering Board

*a.* The Army Configuration Steering Board (CSB) is the decision review body chaired by the AAE and is applicable to ACAT I/IA programs. The CSB complies with Section 814, Public Law 110–417.

*b.* There are two types of CSBs, Trigger Event CSB and De-scoping CSB.

(1) *Trigger Event CSB.*

*(a)* A PM or PEO will promptly notify the CSB Executive Secretary (SAAL–ZSA) whenever an ACAT I/IA program’s current estimate indicates that a performance, schedule, or cost threshold value in the approved APB may not be achieved or when the PM or PEO becomes aware of a “trigger event” that may significantly impact a program’s APB-approved cost and schedule. “Trigger events” include: changes to the: TEMP or POM, changes to approved capability documents, program failure and operational immaturity, proposed technology insertion, global war on terrorism requirements, Army Requirements and Resources Board requirements, supplemental funding, change in strategic direction, and any actual or proposed program change that may result in a significant adverse impact on other programs.

*(b)* Figure 8–3 is a sample memorandum PMs or PEOs can use to notify the CSB Executive Secretary of the need for a Trigger Event CSB. Once notified, the CSB Executive Secretary will coordinate with the ASA (ALT) Deputy for Acquisition and Systems Management (SAAL–ZS) to determine if an Army CSB review is required. The CSB Executive Secretary will notify the PM or PEO if the determination is to conduct a “trigger event” CSB. The Army CSB will occur within 90 days of receipt of the PM/PEO notification by the CSB Executive Secretary. An Army OIPT will typically occur prior to the Army CSB. Any program experiencing changes that trigger an Army CSB will undergo the review prior to taking contract action related to the trigger.

*(c)* If the trigger event results from a requested change to the program initiated by the PM/PEO, the PM/PEO organization will prepare the briefing and justification to be presented at the Army CSB.

*(d)* If the Army CSB is triggered by a change initiated outside the PM/PEO organization (for example, the Army staff), the CSB Executive Secretary will schedule an Army CSB and notify the PEO and PM. The staff element whose action triggered the Army CSB is responsible for justifying the action and for preparing and presenting the majority of the Army CSB briefing. However, the PM is required to provide an assessment of the impact of the proposed change to the baseline program.

(2) *De-scoping CSB.* De-scoping CSBs are held annually during the fourth quarter of each fiscal year for those programs that did not undergo a trigger event Army CSB during the fiscal year. The CSB Executive Secretary will schedule De-scoping CSBs. The PEO/PM will present options that reduce program costs, improve schedule, or moderate requirements consistent with program objectives. The Army CSB will determine which options, if any, should be implemented to reduce cost to the Department and the taxpayer.

*c.* The Army CSB members are—

- (1) AAE – Chairman.
- (2) VCSA.
- (3) Senior representative from the Office of the USD (AT&L).
- (4) Senior representative from the Office of the Joint Staff.
- (5) ASA (FM&C).
- (6) Office of the General Counsel.
- (7) DCS, G–3/5/7.
- (8) DCS, G–4.
- (9) DCS, G–8.
- (10) ATEC.
- (11) TRADOC.
- (12) ASA (ALT) Military Deputy.
- (13) PEO from the MDAP/MAIS program under review.
- (14) Other senior Service representatives, as appropriate.
- (15) Other functional organizations as needed.

*d.* Army CSB decisions will be documented by the CSB Executive Secretary. For ACAT IC and IAC programs, decisions will be documented in an ADM signed by the AAE. For ACAT ID and IAM programs, the CSB decision will be documented as a recommendation in an action memorandum to the appropriate program MDA. The MDA will make the final decision on the CSB recommendation and document the decision, as appropriate.



e. Army CSB members may present recommendations, assessments, evaluations, and other issues for consideration by the CSB, but programmatic decisions remain at the sole discretion of the MDA. The CSB Chairman may establish standing and ad hoc subgroups to address specific issues.

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Office Symbol

MEMORANDUM THRU PROGRAM EXECUTIVE OFFICER

FOR ARMY ACQUISITION EXECUTIVE

SUBJECT: *Program Name* Configuration Steering Board (CSB) Needed

*Program Name* has the potential to deviate from its currently approved Acquisition Program Baseline (APB) dated *month, day, year*, if it executes the change requested by *organization name*. The program will experience a Nunn-McCurdy unit cost breach to the Average Procurement Unit Cost (APUC) and the Program Acquisition Unit Cost (PAUC).

The APUC deviation is estimated at xx% and the PAUC at xx%. The cost increase is primarily/entirely/partly attributed to ...

A revised APB will be submitted if the change to the program is approved by the Milestone Decision Authority. An exception Selected Acquisition Report will also be submitted.

The *program name* is an ACAT ID program.

Project Manger

Figure 8–3. Sample Army CSB notification memorandum

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## Chapter 9 Talent Management for the Army Acquisition Workforce

### Section I

#### Acquisition, Logistics, and Technology Workforce Overview

##### 9–1. General

Personnel supporting the capability requirements and acquisition processes require enhanced training, education, experience, and certification. This chapter provides processes and procedures for implementing an overarching talent management strategy for the Army Acquisition Workforce (AAW). It also incorporates specific direction contained in an 2017 Army directive.

##### 9–2. Acquisition Workforce definition

The DAWIA was initially enacted by Public Law 101–510 on 5 November 1990. It requires the DOD to establish education and training standards, requirements and courses for the civilian and military acquisition workforce. The DAWIA has subsequently been modified by amendments to 10 USC, Chapter 87. OSD recently published an updated DODI 5000.66. As identified in the above documents, the AAW comprises those persons who occupy acquisition-coded positions.

### **9–3. Composition of the Army Acquisition Workforce**

The AAW is made up of approximately 40,000 Army Civilian and military professionals who work throughout the life cycle of a system in 20 different commands throughout the Army. The AAW includes military (officer and enlisted), civilian, U.S. Army Reserve and Army National Guard members.

### **9–4. Army Acquisition Workforce career fields**

Civilian members of the AAW are in acquisition-coded positions identified by 13 acquisition career fields (ACFs) as follows: business-cost estimating; business-financial management; contracting; engineering; facilities engineering; industrial/contract property management; information technology; life cycle logistics; production, quality and manufacturing; program management; purchasing; science and technology manager; and test and evaluation. Military officers, including officers in the Army National Guard and U.S. Army Reserve workforce are managed by areas of concentration (AOC), which directly correspond to three of the ACFs, as follows: program management (51A); contracting (51C); and test and evaluation (51T).

### **9–5. Acquisition Corps and Army acquisition**

*a.* The Acquisition Corps is a subset of the AAW. The requirements for Acquisition Corps membership are established by DAWIA and DODI 5000.66.

*b.* Civilians and military AAW members who meet the education, training, and experience requirements and are qualified for selection to a critical acquisition position (CAP) may request acceptance into the Acquisition Corps. Minimum criteria for acceptance is as follows: GS–13, step one equivalent pay or major(P); bachelor’s degree; 24 business hours; Level II DAWIA certification; and at least 4 years of acquisition experience.

(1) CAPs are a subset of the acquisition corps and are senior-level acquisition positions designated by the AAE as critical. By statute, all military acquisition positions required to be filled by a Lieutenant Colonel and above, to include CSL positions, are designated as CAPs. For civilian AAW members, CAPs are typically supervisory NH–O4/GS–14 or broadband/payband equivalent and above.

(2) Key leadership positions (KLPs) are a subset of CAPs with a significant level of responsibility and authority and are key to the success of a program or effort. Required KLPs are identified in DAWIA and the DODI 5000.66 and can be designated by the AAE. KLPs at a minimum will consist of PEOs, deputy PEOs, ACAT I and II PMs, ACAT I deputy PMs, including MAIS; senior contracting officials, and ACAT I chief, developmental testers, program support managers (lifecycle logisticians), engineers, and business-financial managers. Only an Acquisition Corps member with required KLP credentials and specific acquisition experience may fill these positions.

(3) Non-Acquisition Corps members must be assessed into the Acquisition Corps prior to occupying a CAP or KLP, unless a waiver is granted to allow extra time to meet credentials.

*c.* The DACM office within the USAASC has an automated system to review the records of individuals seeking Acquisition Corps membership to ascertain qualifications and process applications for membership. A service obligation agreement (tenure) is required for all Acquisition Corps members selected for a CAP/KLP.

*d.* Military officers are accessed into the AAW by a quarterly Voluntary Transfer Incentive Program at approximately their 7th year of service. Military accession into the Acquisition Corps is limited to those who meet the minimum requirements for Acquisition Corps membership, apply, and are accepted. The acquisition management branch (AMB), U.S. Army Human Resources Command (HRC) is responsible for the accession of functional area 51 acquisition officers.

## **Section II**

### **Army Acquisition Workforce Talent Management Strategy Framework**

#### **9–6. Framework guiding principles**

The AAW talent management framework rests on Army doctrine.

*a.* The Army defines talent management as a deliberate and coordinated process to optimize leader development practices and align talent with current and future Army requirements to improve the individual and the organization. Talent management is guided by the philosophy of mission command and is complementary to leader development.

*b.* Talent management aligns systematic planning for the right number and type of people to meet current and future Army talent demands with integrated implementation to ensure the majority of those people are optimally employed. Talent management extracts the most productivity and value from an organization’s greatest asset – its people. Army talent management integrates people, acquisition, development, and retention strategies. It begins with entry-level employees and aligns their talents against the demand for them during their entire careers, to include positions at the very top of the Army. By better understanding the talent of the workforce and the talent needed by units, the Army can more effectively acquire,

develop, employ, and retain the right talent, at the right time. The Army Talent Management Strategy is the organizing concept for the Army's future-focused human capital management practices.

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## Army Human Capital Life Cycle

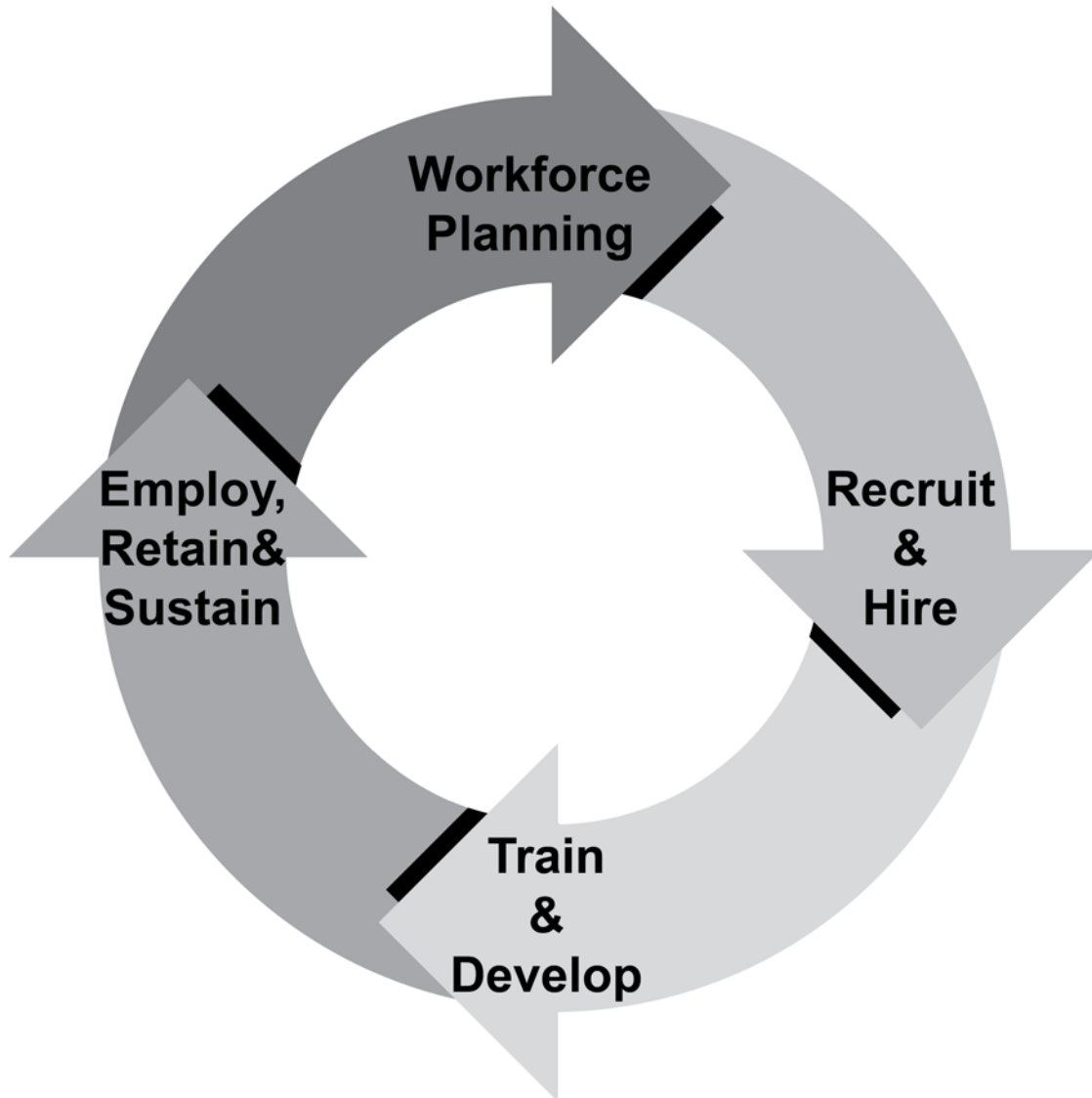


Figure 9–1. Army Human Capital Life Cycle

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### 9–7. Army talent management priorities

Establishment of an AAW talent management strategy aligns with the Army talent management priorities.

*a.* The Army is working to improve the way it acquires, employs, develops, and retains human capital to optimize the talent management of all Army professionals and teams for their mutual benefit so they can thrive and win in a complex world.

*b.* In support of this vision, the U.S. Army Combined Arms Center published the Talent Management Concept of Operations for Force 2025 and Beyond as a comprehensive effort to change and improve land power capabilities in support of the Joint force.

c. The Army human dimension strategy established the development of a talent management strategy for the Army Total Force as a required key task. This strategy must establish the talent management principles that will be applied to the core functions of the Army's human capital management enterprise and the career life cycle of all Army professionals through a holistic, integrated approach. These core functions are workforce planning, acquisition, development, employment, and retention. This strategy must establish a framework for managing talent management systems and required capabilities. It must identify the ways and means for integrating talent management solutions across DOTMLPF-P domains.

d. An effective talent management strategy must facilitate comprehensive organizational transformation. The fundamental purpose of this concept of operations is to inform the development of an Army talent management strategy.

### **9–8. Enabling the Army Acquisition Workforce**

The AAW consists of over 40,000 Army acquisition professionals who are involved in the development, acquisition, and procurement of everything from tanks, helicopters, missiles, body armor, radios, and software to services. We must ensure we have the best talent in these positions to give our Soldiers the finest equipment they need to fight and win wars. Talent management is the key enabler for the AAW to ensure that the right person is in the right job at the right time. The AAW currently has numerous programs and processes in place along with a number of tools for managing talent, particularly in the area of recruiting, development and retention. When it comes to competing for talent, we must continue to be innovative in finding ways to make the Army a great place to work and the talent will follow. A talent management strategy must be forward thinking and our personnel policies should not create unnecessary obstacles to recruit, develop, and retain a world class acquisition workforce.

### **9–9. Developing an enterprise level strategy**

The development of an enterprise level AAW talent management strategy in FY 2014 led to numerous AAW initiatives. One was the establishment of civilian-only centrally selected product and project director (PD) acquisition positions throughout the AAW. In the first quarter of FY 2015, the principal military deputy to the ASA (ALT), who is also the Director, Army Acquisition Corps (DAAC), convened the first civilian only Product and Project Director Centralized Selection Board. Additionally, the initial Talent Management Board of Directors (BOD) consisting of the DAAC, the DACM and PEOs was organized with the objective of slating the FY 2015 selectees and discussing talent management initiatives. Another talent management initiative was the introduction of a standard taxonomy for acquisition program leader positions which created a basis to distinguish positions for AAW talent. These initiatives combined with several others since 2014, formed the basis for an enterprise level AAW talent management strategy.

### **9–10. Army acquisition reform**

Talent management within the Army Acquisition Corps (AAC) is one of nine major emphasis areas under Army Acquisition Reform Initiatives, which are intended to streamline and improve the acquisition process following the enactment of the FY 2016 National Defense Authorization Act (NDAA). Enhancing the talent management of our capability requirements, acquisition, and resource management workforces to improve acquisition outcomes is a top priority. Personnel supporting the capability requirements and acquisition processes require enhanced training, education, experience, and certification. As a result and in support of the ASA (ALT) strategic goal to develop the AAW, the Army DACM office implemented several talent management initiatives to foster growth and posture Army Acquisition professionals for future success. Some of these initiatives are further codified in the AAW Human Capital Strategic Plan (HCSP) that focuses on professionalizing our most valuable asset – a dedicated and talented acquisition workforce. The AAW HCSP, established in FY 2016, created an enduring talent management process, which supports a strategic human capital life cycle to enable workforce planning, recruitment, hiring, training, development and career management.

### **9–11. Senior leader commitment**

Talent management of the AAW is a senior leader priority.

a. It is incumbent upon our leaders to identify and manage our high performing/high potential acquisition professionals to meet the mission and vision of the AAC to ensure we have the very best trained and qualified acquisition professionals across the enterprise to lead and manage our acquisition programs.

b. The Army DACM is responsible for the development and execution of the processes and practices to ensure talent management is instilled within the AAW human capital management resourcing strategy. The Army's DACM office maintains the responsibility for the education, training, career and leader development of all Army acquisition civilian and military professionals. The Director of the USAASC serves as the DACM, and the Army DACM office resides within USAASC.

c. Future military and civilian workforce turnover, including the reduction to CSL positions, and potentially limited civilian promotion opportunities are a reality. Therefore, it is incumbent upon our leaders to identify and manage high performers and high potential acquisition personnel to meet the mission and vision of the AAW. Crucial to creating these leaders is the development of a cohesive plan with strategic messaging, which highlights both individual and leader accountability. Most importantly, there is no substitute for PEO and command day-to-day personnel development and management responsibilities.

d. Military acquisition talent management remains a model for our civilian workforce. The current officer and noncommissioned officer (NCO) career models identify acquisition categories to depict career progression from functional, to career broadening, to our most senior levels and further defines high-visibility positions to be filled by high-performing/high potential officers and NCOs. This allows us to view the military acquisition talent pool and identify personnel with the potential for these higher-level job responsibilities from the more junior grades all the way to general officer. However, we must also be diligent to ensure the highest potential military and civilian acquisition personnel are identified and developed to ensure proper succession planning and to support a robust talent management strategy.

### 9–12. The talent management framework

The talent management challenges are complex and sustainment of the AAW depends upon the investment we make today. Talent management must be based on creating strategic-focused military and civilian acquisition leaders who can prepare the force for the future. Our talent management framework will guide us as we continue to develop tools, processes and programs to ensure we develop our best and brightest talent to meet our future AAW senior leader requirement.

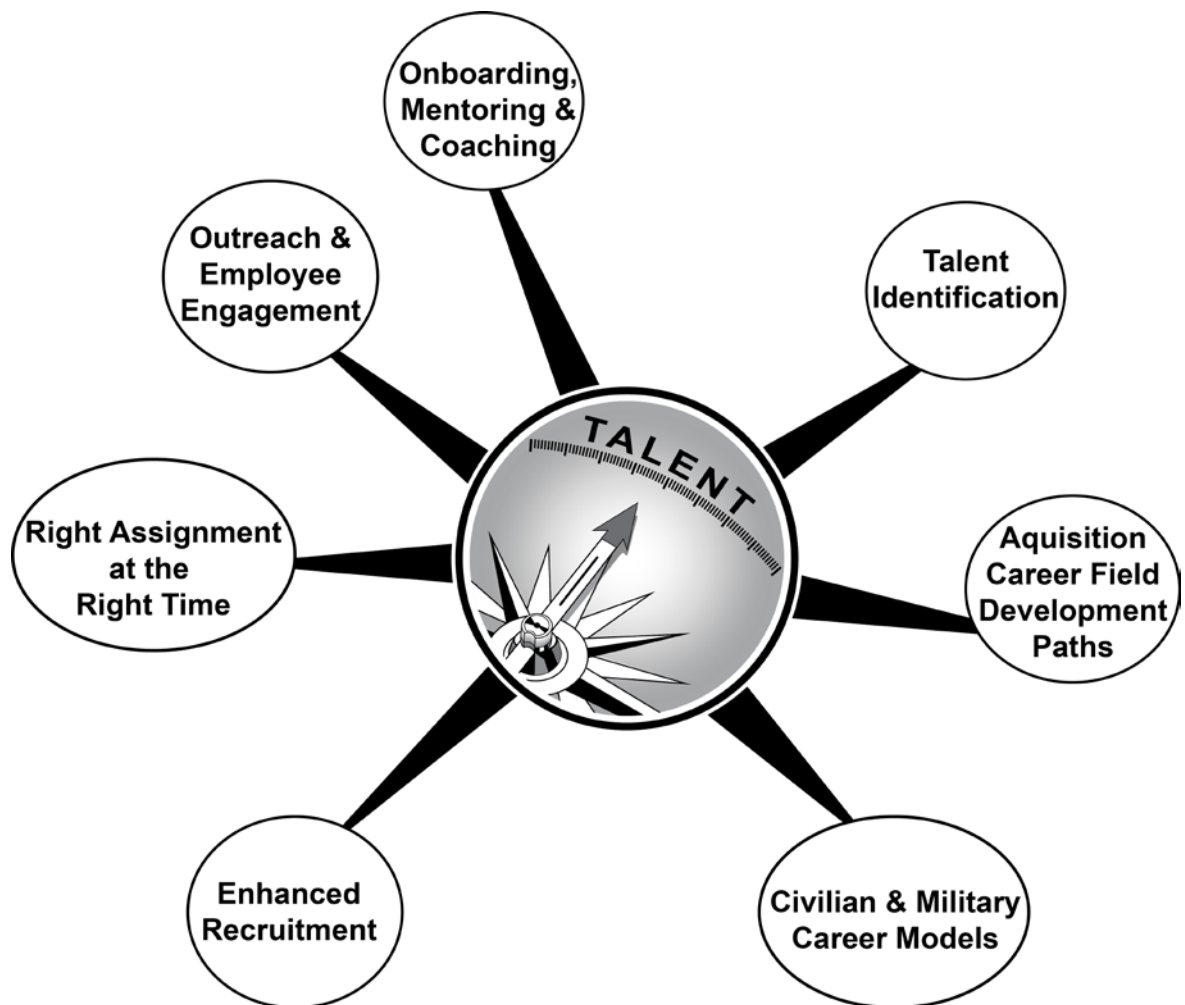


Figure 9–2. Talent management framework

## Section III

### Army Acquisition Workforce Talent Management Strategy Tools

#### 9–13. Identification of talent

It is incumbent upon the Army to identify high performing/high potential acquisition personnel and manage that talent to meet the mission and vision of the Army and the AAC.

*a.* The Army DACM office establishes the methods/tools to develop the talent management talent pool at all levels with input from AAW senior leaders and commanders. Senior leaders set the criteria for evaluating talent, however evaluation of high performing/high potential AAW personnel must include subjective measures. Talent should be identified through the use of established techniques, tools and practices.

*b.* The Army DACM office also works with PEOs to establish tenure agreements for critical acquisition and key leader positions and provides guidance on the increased use of management directed reassignments, both for the purpose of expanding developmental and broadening opportunities and meeting acquisition reform initiatives within the PM ACF. Additionally, coordination and collaboration with all other Army commands and organizations helps by providing guidance and assistance with the expansion of developmental and broadening opportunities for AAW personnel.

#### 9–14. Appraisals

The DOD Performance and Management Appraisal Program, Defense Civilian Intelligence Personnel System, and the various personnel demonstration projects evaluate the quality of performance associated with the current duties and contributions to the acquisition mission. Leaders must ensure supervisors and managers effectively utilize these annual appraisal systems to properly counsel and evaluate performance. Setting expectations and creating clear objectives during initial and mid-point counseling sessions will ensure the means to identify and develop the best talent.

#### 9–15. Senior rater profile evaluation

The senior rater profile evaluation (SRPE) is used to evaluate the potential of acquisition civilian employees to perform in positions of increased responsibility.

*a.* The SRPE is a tool to assist leaders of AAW civilians to measure leadership potential and assist in identifying the potential of civilians considered for senior programs or positions. It assesses leadership potential. It does not evaluate performance. SRPEs also assist acquisition civilians with identifying their strengths and under-developed areas and offer recommended positions to enhance their professional and leadership development.

*b.* Reinstating tools to assist with AAW talent management began in July 2015 with the phased introduction of an annual mandate for the SRPE. The Army DACM office, DCS, G–1, and the Office of General Counsel worked collectively to establish policy and procedures to implement the SRPE among AAW civilians which measures leadership potential for civilians applying for competitive positions in several senior leader programs. An annual SRPE is required for AAW personnel in the grades from GS–12 through GS–15 or their broadband/payband equivalents on a fiscal year cycle.

#### 9–16. The Defense Acquisition Workforce Improvement Act

The DAWIA responded to the need for increased emphasis on the development of a qualified and professional Defense Acquisition Workforce. The SRPE supports this goal by providing Army senior raters of AAW employees with a tool designed to assess leadership potential strengths and weaknesses related to a set of competencies needed by professionals and in comparison to the potential of other AAW employees within the organization. Secondly, Section 1733(a) of the DAWIA requires that the best-qualified individuals, whether military or civilian, be selected for acquisition positions. By evaluating and documenting the leadership potential of civilian employees, the SRPE provides a document that allows selection boards to more easily and equitably compare a civilian candidate's leadership potential with that of a military candidate, as well as their civilian peers. Selecting officials/boards also use the SRPE to evaluate the leadership potential of candidates for civilian key leadership positions, and training, career and leader development opportunities within the AAW.

#### 9–17. Counseling

Supervisors at all levels are a key component to the development of AAW professional objectives and goals. Honest and frank conversations with people, reviewing their performance against their objectives from the past year, and discussing their new objectives are extremely important components of an integrated talent management strategy. When it comes to competing for talent, AAW leaders must be creative in finding ways to make sure that unnecessary obstacles, and impediments in existing regulations and policies are eliminated. Supervisors and leaders must understand problems and assist with solutions as well as be responsible for setting and managing expectations of acquisition professionals. They must use

their technical expertise and leadership experience to provide timely feedback and skilled guidance to enable AAW development and growth.

### **9–18. Army Acquisition Workforce Talent Management Board of Directors**

Senior leaders at all levels within Army organizations that include acquisition personnel must be actively involved in the identification of talent and provide opportunities for their development. The semi-annual AAW talent management BOD was established in FY 2015.

a. The talent management BOD consists of the DAAC, DACM, and all PEOs, and/or deputy PEOs. It meets semi-annually to discuss civilian talent and various talent management initiatives and programs. The talent management BOD is dedicated to slating incoming PDs selected by the centralized selection board and discussing broadening and development opportunities for civilian talent. Its use as a venue to discuss talent management ideas and initiatives and a means for slating centrally selected program management personnel, is a best practice for the creation of AAW talent management and succession planning programs.

b. The talent management BOD also seeks feedback on the effectiveness of the talent management programs and facilitates cross-talk, information sharing, and collaboration among senior acquisition leaders. The long term goal of the talent management BOD is to bring all AAW organizations and commands together to discuss talent and share best practices.

### **9–19. Centralized acquisition recruitment cell**

Best practices or lessons learned has led to focused utilization of all acquisition hiring authorities (for example, direct hiring authority or expedited hiring authority using open continuous announcements with a not-to-exceed date and providing 30 to 60 day referral lists from those announcements, bundling of like positions, and so forth). Success is measured and defined using Lean Six Sigma objectives in speed and quality, reducing hiring time in days as measured against historical hiring averages, and assessing customer and manager satisfaction through the use of a consolidated hiring cell. The ability to use the Defense Acquisition Workforce Development Fund (DAWDF) for acquisition hiring allows the AAW to thoroughly examine recruitment and hiring processes and take advantage of the applicable tools and exceptions and ensure we provide the right acquisition skills at the right place at the right time. A concentrated focus and collaboration with our Civilian Human Resources Agency (CHRA) partners should provide the capability to lean and refine our processes and analyze opportunities which may assist in delivering the necessary AAW manpower resources.

### **9–20. The virtual acquisition career guide**

The virtual acquisition career guide is the first virtual human-based simulation within the DOD that uses personalized information from AAW members to provide tailored career advice and guidance. Designed for AAW members, the web-based system (available at: [https://vacg.simcoach.org/simcoach/example\\_launch.html](https://vacg.simcoach.org/simcoach/example_launch.html)) features an integrated, interactive Institute for Creative Technologies virtual character, also known as “Ellie,” to serve as a personalized career mentor and a virtual help desk, and provide 24/7 acquisition career management response to the entire Army acquisition personnel workforce. The virtual acquisition career guide focuses on virtual helpdesk abilities – allowing the AAW to receive instant answers to day-to-day workforce development questions or issues. The “Ellie” portfolio of capability is primarily tied to the acquisition career record brief, offerings of the Defense Acquisition University (DAU) courses, Individual Development Plans (IDPs), and Certification/AAC membership. Additionally, “Ellie” provides personalized checks of current and acquisition personal certification status, IDP currency, and compliance under the Army’s Continuous Learning Policy. The virtual acquisition career guide is designed to eventually include the ability to provide personalized career management guidance relative to individual positions within any of the 14 Army ACF road maps. The goal of the virtual acquisition career guide deployment is to decrease the workload of acquisition career managers who answer approximately 20,000 helpdesk tickets every year.

### **9–21. Career development models**

The Army DACM office is charged with enhancing and improving civilian acquisition career models for all 14 of the Army ACF and ensuring AAW members are familiar with what they are and how to integrate them with the development of an IDP. Supervisors and leaders must become familiar with career models and must use them to counsel, mentor and provide annual feedback to their personnel. Acquisition professionals must utilize the AAW civilian acquisition career models for their ACF. Civilian career models must mirror military career models so they are easily recognized and accepted by the AAW and senior leadership. Acquisition career models must be synchronized with acquisition OSD-level functional integrated product team and functional subject matter experts and be fully vetted through career program functional representatives or points of contacts. Up to date and accurate acquisition education & training programs and leader development classes must be infused in career models. Acquisition career models assist in the attainment of a comprehensive

acquisition talent management plan and allow both supervisor and employee a non-prescriptive plan for acquisition career development and succession planning.

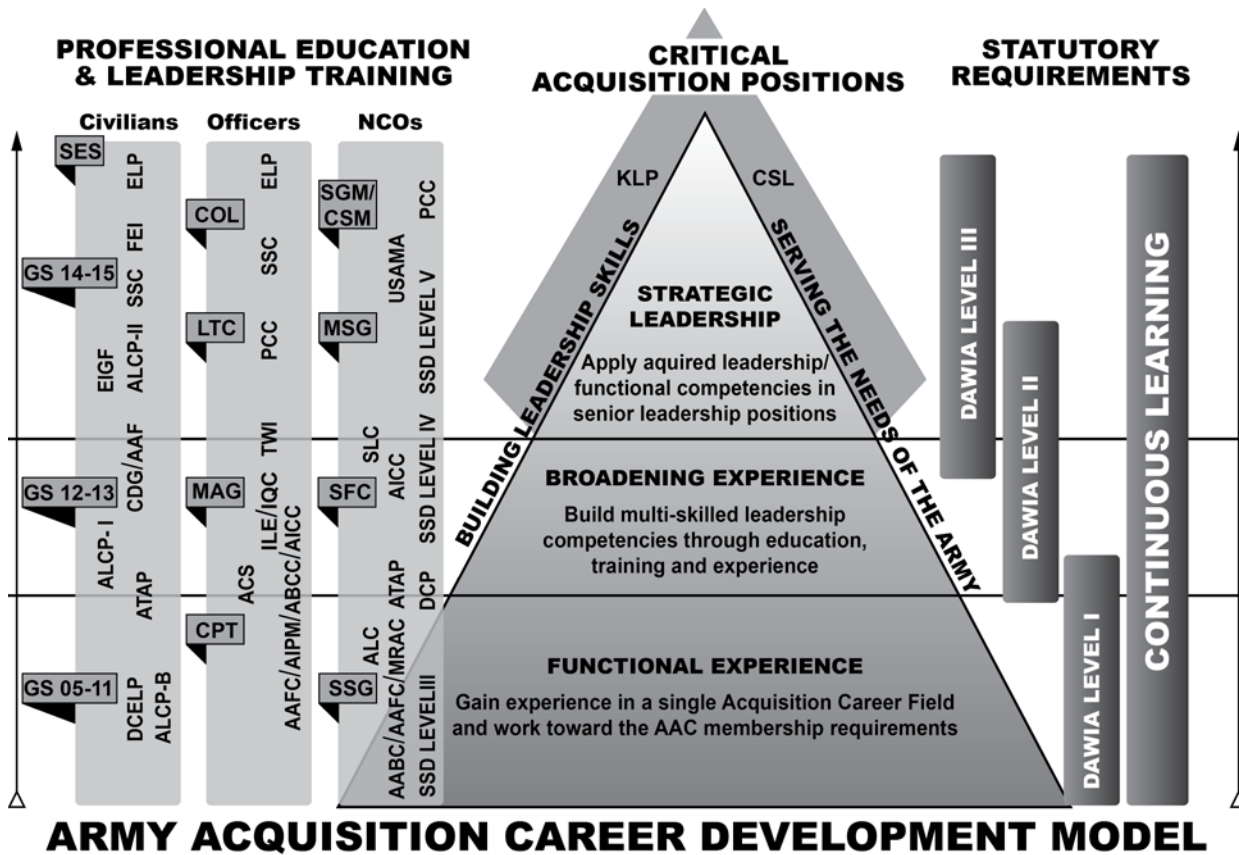


Figure 9-3. Army Acquisition Career Development model

## 9-22. Career Acquisition Management Portal/Career Acquisition Personnel and Position Management Information System

AAW members currently manage the details of their acquisition IDP, ACFs, DAWIA certifications and other professional credentials through, a common access card-enabled web-based resource developed and managed by the Army DACM office (available at: <https://rda.altess.army.mil/camp/>). All Services and related activities have been forced to adapt to downsizing environments, without sacrificing capabilities. One way to do so is through improving tools to ensure the necessary education, training, and development of the AAW. The Army DACM office has been leading such an effort focused on career management and advancement for its AAW members. The Career Acquisition Management Portal (CAMP) houses all AAW personnel data inside the Career Acquisition Personnel and Position Management Information System (CAPP MIS) database (access the CAMP website available at: <https://rda.altess.army.mil/camp/>, then use the CAPP MIS link to access CAPP MIS). CAPP MIS allows users to view, update and seek out information and guidance related to their ACFs, such as personnel information, DAWIA certification requirements, leadership training, development plans and much more. CAPP MIS is the tool that allows the Army DACM office to monitor and report DAWIA requirement status and completion. CAMP/CAPP MIS has numerous automated modules such as the Army Acquisition Professional Development System which can be utilized for all centralized board processes and provides the ability for virtual board selection of any and all AAW programs and opportunities to include Army and AAW centralized boards and DOD/Army awards and recognition boards.

### Section IV

#### Army Acquisition Workforce Talent Management Strategy Programs



### **9–23. Enhanced recruitment programs**

*a.* AAW recruitment and hiring challenges require strategic-focused acquisition civilian professionals/leaders who can prepare the force for the future. These professionals/leaders must continue to develop tools, processes, and programs to recruit, hire, develop, and retain the best and brightest talent to meet future AAW requirements.

*b.* As a result of the USD (AT&L) Civilian Human Resources Workforce Joint Summit in July 2015, the USAASC/Army DACM office established the AAW recruitment cell in Aberdeen, MD. In coordination and collaboration with the CHRA, a centralized acquisition hiring cell pilot was established to assess and standardize all acquisition civilian hiring authorities. The objective of this cell is to look at current acquisition hiring authorities, eliminate confusion caused by different interpretations of hiring authorities across the Army civilian personnel advisory centers, and enhance utilization of those authorities. Working with CHRA headquarters, the cell will analyze AAW hiring challenges across organizations that hire civilian acquisition personnel; address the hiring lag within the AAW, and leverage unique acquisition hiring authorities. A problem set was established and several best practices with the DOD and Army were researched. After successful coordination with CHRA headquarters, a concept used by the Army medical community was determined to be the best course of action for the implementation of the AAW pilot program.

### **9–24. Onboarding programs**

Onboarding activities to energize new acquisition personnel to the critical importance of the acquisition mission, acclimate them to the acquisition team, reinforce retention, and must be used from day one to guide, mentor and coach them on their acquisition functional responsibilities. To enhance onboarding, the USAASC/Army DACM office provides a welcome letter bimonthly to all new acquisition personnel upon their assignment, a videotaped message from senior ASA (ALT) leadership, and an orientation briefing by senior acquisition leaders delivered on behalf of the DACM. Acquisition organizations must provide timely, relevant, and realistic introduction to acquisition as a part of their organizational onboarding procedures. The USAASC/Army DACM office assists in these efforts.

### **9–25. Mentoring**

Mentoring is another way to retain the best talent, and provides an opportunity for senior leaders to develop newer members of the AAW.

*a.* The Army DACM office fielded an online AAW mentoring toolkit capability based on feedback and lessons garnered from 2014 cohort program participants.

*b.* Mentoring is relationship oriented and provides a safe environment to share whatever issues affect workforce members' professional and personal success. Although specific learning goals or competencies may be used as a basis for creating the relationship, its focus goes beyond these areas to include such things as work-life balance, self-confidence, self-perception, and how personal influences affect performance. Leaders should take the time to personally engage through mentoring. Effective mentoring helps AAW members understand that not only are they a valuable part of the team and well appreciated, but they also know they can receive interaction with seasoned leaders who can show them what the future might hold and prepare them to grow in the acquisition profession. Mentoring is a long-term activity and requires time for both partners to learn about one another, build a climate of trust, and create an environment in which they can feel secure in sharing the real issues that impact their success. To be successful, mentoring relationships should last at least nine months to a year. Mentoring is development driven and develops the individual not only for the current job, but also for the future. This distinction differentiates the role of the immediate supervisor and that of the mentor. It also reduces the possibility of creating conflict between the employee's supervisor and the mentor.

*c.* Mentoring within the PM community was identified as an important need as a result of the "Section 809 Panel" and "Section 853" review as well as through several PM functional integrated product team recommendations. We must expand on best practices of providing mentors and mentees training throughout the AAW through preparation for mentoring, coaching for mentors, and assessment for mentors and mentees. A biographical match of mentors and mentees has also proven to be useful. Another program that can be expanded is the establishment of a mid-term (10 to 12 month) mentorship program for both mentors and mentees. Partnerships with local colleges could also assist with development of mentoring skills for civilian and military acquisition members.

### **9–26. Coaching**

Coaching is another technique to provide professional growth and development of acquisition leadership talent. Coaching is a powerful tool to bring about sustained behavioral change and advance leadership performance and competencies. Coaching is task oriented and focuses on concrete issues, such as managing more effectively, speaking more articulately, and learning how to think strategically. It is a partnership which provides a forum to achieve individual and specifically tailored goals for the employee which is built around self-learning, growth and change. Coaching is performance driven

and improves the individual's performance on the job and involves either enhancing current skills or acquiring new skills. The immediate supervisor is a critical partner in coaching. The supervisor provides the coach with feedback on areas in which the employee is in need of coaching. The coach uses this information in the coaching process. Organizations must prioritize the establishment of self-sustaining mentoring and/or coaching programs to allow for the professional growth of our acquisition talent.

**9–27. Army Acquisition Workforce development programs**

The DAWIA mandates professionalism and specifies an acquisition career and leader development focus. The Army DACM office, partnering with acquisition leaders, continues to create and enhance centralized developmental programs for future AAW leaders. Providing the necessary resources required to professionalize the workforce through training and educational opportunities with a focus on building competencies from the ground up to AAW KLPs, will be paramount to the success of the AAW talent management strategy. Development programs for acquisition personnel must be relevant, realistic and constantly evolving.

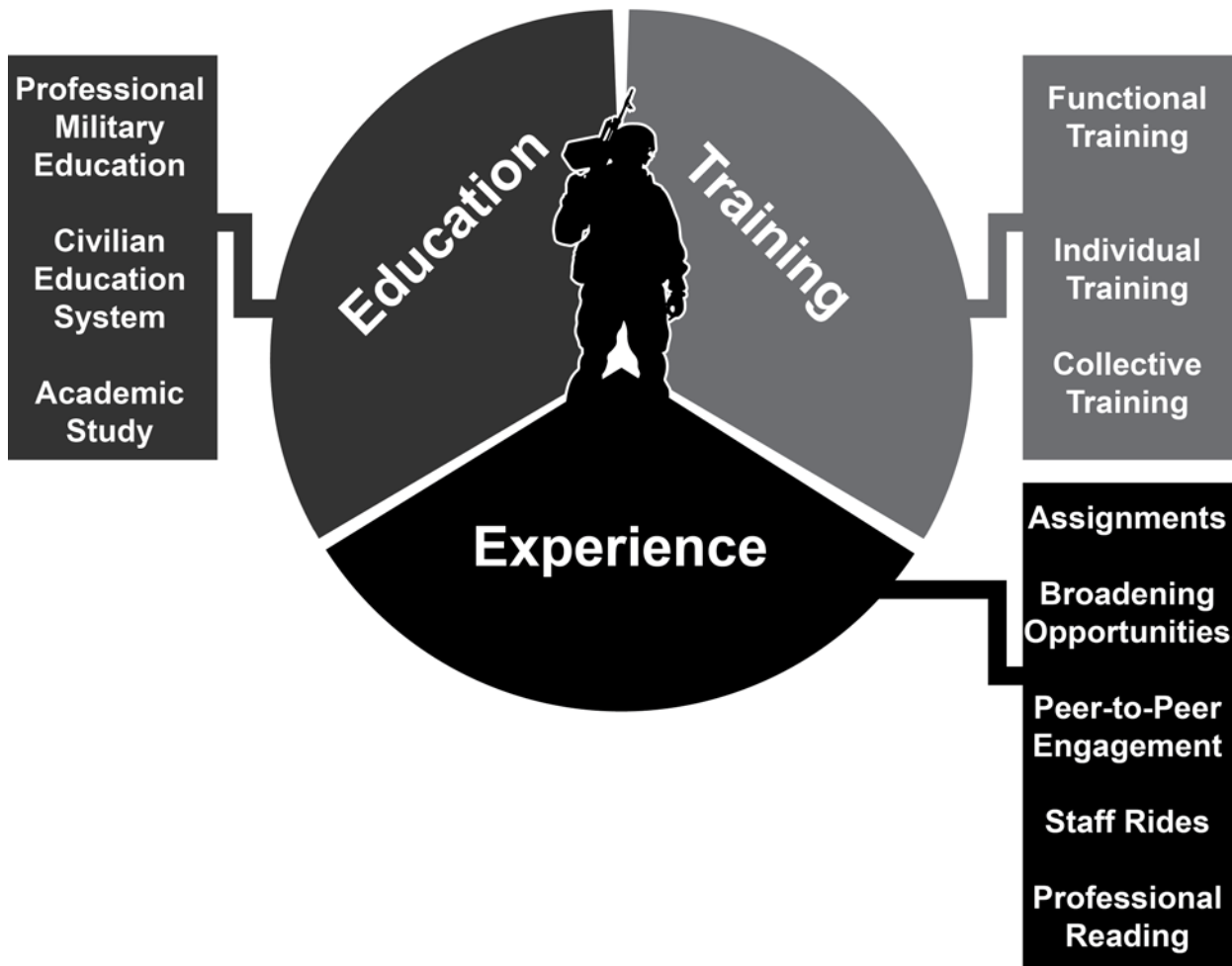


Figure 9–4. Army learning environment

**9–28. Junior leader development programs**

Inspiring and developing excellence in acquisition leaders (IDEAL), is an acquisition specific leader development program consisting of two, 3-day classes facilitated by the Army Acquisition Center of Excellence. Created specifically for the AAW, the IDEAL program is intended to develop and nurture leadership skills in high performing GS–12s and GS–13 (or equivalent broadband/payband) acquisition civilians with demonstrated leadership ability. Topics are selected based on feedback from senior personnel regarding the skills and knowledge that AAW members need to be successful leaders as

an acquisition professional. The program utilizes a practical learning approach and includes coaching, discussion, feedback and simulation. IDEAL is not about abstract concepts or theory; it uses a hands-on behavioral approach with practice and simulation.

### **9–29. Acquisition Leadership Challenge Program**

The Acquisition Leadership Challenge Program is a leadership development seminar which is designed to establish a foundation of self-awareness and assist in the overall leadership and diversity development within organizations. The course offers four levels of programs to ensure GS–7 to GS–15 or broadband/payband equivalent AAW civilians across the workforce receive leadership development. The course objective is to ensure attendees can communicate at all levels through common language, creating an innovative culture by helping to understand each individual’s personal preferences and behaviors and help develop leaders who value individual styles and behaviors. The goal is to create a leadership corps more capable of critical thinking/problem solving, teamwork/collaboration, and creativity/innovation. This approach includes addressing people’s unconscious biases to allow them to see new ways of doing things and emphasizing the strength and power in accepting individual differences. The senior course focuses on the major challenge for new organizational leaders: to incorporate individual talents into a cohesive work force. Building a shared and executable vision enhances self-awareness and engagement through continuous self-assessment and development, which fosters a commitment towards lifelong learning and is intended to target those individuals in the organization who are in a mid to senior level of leadership.

### **9–30. Competitive Development Group/Army Acquisition Fellowship**

The Competitive Development Group/Army Acquisition Fellowship is a 3-year leader developmental program for AAW high-performing/high-potential civilian GS–12/13 or broadband/payband equivalents, certified in any acquisition career field. Selectees are provided centrally funded leadership training and developmental assignments offering a series of education, leader development and broadening assignments.

### **9–31. Training with Industry**

Training with Industry provides Army acquisition officers and NCOs with hands-on experience in top defense, information technology, and pioneering commercial companies and creates a mutually beneficial relationship. Selectees actively experience industry best practices through one year assignments with leading industry partners in order to benchmark lessons learned and affect positive change in the AAC. The Army DACM office analyzes the utility of TWI experiences for the civilian acquisition workforce to enhance developmental experiences and cultivate long-term partnerships. Assignments following TWI should provide significant value and return on investment to the Army, AAW member and the AAC.

### **9–32. Senior leader training**

a. The DAU offers a variety of DAU 400 series (PM and acquisition-specific) leader development courses for senior acquisition professionals. These courses primarily focus on skill retention and refinement, DOD policy updates, case study analysis, insights into acquisition best practices, risk management, and leadership.

b. Senior level acquisition professionals are also afforded the opportunity to attend senior Army level centralized programs such as Senior Service College (SSC) and Federal Executive Institute. The DAU SSC Fellowships at Aberdeen, MD, Huntsville, AL, and Warren, MI, are an alternative opportunity for those senior civilians who are not readily mobile. Attendance at these courses usually occurs prior to assuming a colonel or GS–15 broadband/payband equivalent acquisition command or program.

c. The Army DACM office has also identified education and leader development opportunities with an enterprise and strategic/executive leadership emphasis for senior level acquisition professionals post-command and post-program. Several development/education opportunities at a number of institutions of higher learning are available and include but are not limited to: Brookings Institute, Darden and Harvard Business Schools, Cranfield University, and several others. These institutions have robust curriculums that when completed, can equip our senior acquisition professionals with frameworks and processes to expand their leadership, knowledge, and capabilities and to excel under the most difficult circumstances, which is critical in today’s increasingly complex environment. Further development of a senior level (O–6/GS–15 or broadband/payband equivalent) fellowship program with one or more of these institutions is an HCSP goal. Fellowships will be tailored for our most talented leaders within the O–6/GS–15 or broadband/payband equivalent community and centered on highly successful AAW PMs during the last two years of their tenure. Fellowships will create a means to share case studies, best practices, and lessons learned while providing an opportunity to identify the highest potential leaders for follow-on assignments/mentoring within the Army Acquisition community.

### **9–33. Senior military acquisition advisor/adjunct professor at Defense Acquisition University**

The FY 2017 NDAA contained provisions for selecting and designating a senior military acquisition advisor/adjunct professor at DAU. The Army DACM office is responsible for developing a process that ensures fair and open competition among high potential talent and a procedures to evaluate and select that talent.

### **9–34. Advanced civil schooling**

Advanced civil schooling provides the AAW with the capability to educate high potential acquisition officers and NCOs at civilian universities nationwide. Masters degrees are offered in information technology, business administration, technology management, acquisition, acquisition management, project management, operations management, acquisition procurement management, systems engineering, and finance management in acquisition, or masters of science degrees in systems engineering, aerospace engineering, global leadership, and acquisition and contract management. Although formal advanced civil schooling programs are not available to acquisition civilians, organizations are encouraged to find alternative solutions to facilitate educating the best acquisition talent.

### **9–35. Acquisition Tuition Assistance Program**

Acquisition Tuition Assistance Program is an off-duty tuition assistance program available to acquisition civilians and NCOs requiring a degree in order to meet their position certification requirement. The program primarily supports the educational requirements under the DAWIA for permanent civilians and NCOs with contracting military occupational specialties. Acquisition Tuition Assistance Program also funds required courses towards AAC membership or acquisition/business related courses towards a bachelor's or master's degree.

### **9–36. Degree Completion Program**

The Degree Completion Program is a full time program available to acquisition noncommissioned contracting officers who have 24 months of experience and who require a degree in order to meet their position certification requirements. The program length is normally 12 to 18 months, and selectees attend school in a full time status to complete a bachelor's degree in a business-related field. Quotas are allocated by fiscal year. Students are responsible for all costs associated with the degree, to include books; however the GI Bill, Veteran's Administration, and student loans can be used.

### **9–37. Naval Post Graduate School**

The Master of Science in Systems Engineering Management (Program 522) for military and the Master of Science in Systems and Program Management (Program 722) for civilians are designed to provide acquisition professionals with a distance learning formatted curriculum to acquire the knowledge, skills, and abilities to lead and manage more effectively through advanced concepts, methodologies and analytical techniques necessary to manage successful programs and projects within complex organizations. Naval Postgraduate School programs are designed to solve a wide range of systems engineering and integration challenges by providing the technological tools relevant to better meet the needs of the customer. High performing/high potential acquisition civilians at the GS-11 through GS-15 or broadband/payband equivalent level are eligible to enroll.

### **9–38. Employee engagement and expanded Army Acquisition Workforce outreach**

As a function of the AAW HCSP, the Army DACM office will continue to expand outreach and communication efforts to the AAW. Development of an acquisition workforce-wide communications plan to ensure comprehension of career development resources is paramount to the success of this talent management strategy. Communicating changes to the AAW through the USAASC/Army DACM office website (<https://asc.army.mil/web/dacm-office/>), publishing DACM news articles, making proponent visits, and an enhanced social media presence are several of the methods to accomplish this effort.

### **9–39. Army Acquisition Workforce supervisory development programs**

*a.* A FY2015 Federal Employee Viewpoint Survey section dealing with leaders/supervisors identified the need for the DOD and Army to review and prioritize efforts to improve supervisor training and development. An Army employee engagement team analyzed Army supervisor training and certification and found there were critical gaps and capabilities which were lacking among the civilian workforce.

*b.* The ASA (M&RA) recognized a need to develop a framework to meet the capability gap, and the result was the development of a new supervisor onboarding and coaching program model (refer to paras 9–24 and 9–26). The goal to train new supervisors on how to effectively lead civilians and improve their supervisory and leadership skills is outlined

by an effective 18-month onboarding, coaching, and training program for new supervisors. The intent is to enhance employee engagement by ensuring supervisors are aware of and accountable to their roles, responsibilities, and expectations. The outcome: competent and confident supervisors.

c. Enhanced supervisor training and relations is an integral component of an integrated talent management strategy. A part of the AAW HCSP, the Army DACM office continually analyzes AAW programs and collaborates with the ASA (M&RA) to find solutions to fill critical supervisor capability gaps. The AAW HCSP must ensure enhancement of supervisors' knowledge, their increased engagement, and improvement in supervisors' leadership skills through training, feedback, performance management and coaching.

#### **9–40. Standardized Army Acquisition Workforce positions**

Common or standard nomenclature and position descriptions for all acquisition positions is a tenant of an integrated talent management strategy.

a. As a follow-on to the development and execution of an AAW civilian-only PD centralized selection program, the Army DACM office has standardized a group of positions in the PM ACF and created a standard vocabulary for all program leads. This best practice has been applied to development of standardized position descriptions for use throughout the AAW.

b. Standardized position description/position requirements documents were classified in the fully Automated System for Classification—the Army's civilian position description database. Only civilian acquisition professionals serving in AAW-approved positions will utilize the CHRA approved standard position description/position requirements document which is applied to PD, product lead, assistant program manager, deputy PM, program officer, and systems acquisition officer positions.

#### **9–41. Military acquisition position list or centralized selection list**

An annual military acquisition position list/centralized selection list review includes a review and validation of all civilian and military centrally selected program management and contracting positions. The military acquisition position list/centralized selection list review process includes criteria to evaluate each program for cost, schedule, performance, funding profile, ACAT level, and complexity, in order to delineate between project/product managers, project/product directors, project/product leads, contracting brigade/battalion commanders, and acquisition directors. All military acquisition position list/centralized selection list positions will be identified on the appropriate organizational table of distribution and allowances. The Army DACM office reviews all submissions during an annual review board to determine and validate program types and establish a standard naming convention.

#### **9–42. Centralized selection programs**

a. *Project and product managers.* PMs must be the best qualified and highest potential military and civilian AAW members in the program management acquisition career field, and be at the grades of lieutenant colonel/GS–14 and colonel/GS–15 (or broadband/payband equivalent levels). An annual AAC key billet/CSL board process will centrally select these AAW members. Board announcements and application information will be posted by the Army HRC for military members and by the Army DACM office for civilians. The announcement will identify the qualifications, the selection and slating process timeline, and all the necessary application requirements. Civilian PMs will be required to have experience in S&T, T&E, and contracting before becoming a GS–15 or broadband/payband equivalent PM. The development of a broadening assignment program for all DA Civilians through memorandums of agreement (MOA) to institute broadening assignments across S&T, T&E, materiel development, and sustainment will enhance talent management and develop leaders who have a broader understanding of the generation of Army requirements and acquisition. Section IV further delineates how program managers gain experience through experiential and broadening assignments.

b. *Annual Army acquisition executive civilian centralized selection board process.* The centralized PD program employs a similar approach as that described in paragraph 9–42a, identifying high performing civilians with leadership potential to fill civilian PD positions commensurate with their military counterparts, thus ensuring we meet the future needs for experienced senior leaders. Project and project director positions will be centrally managed by the Army DACM office, in coordination with the PEOs. AAW leaders should encourage high potential/high performing GS–14/GS–15, or broadband/payband equivalent civilian acquisition professionals, to apply for consideration. PD slating will be completed at the talent management BOD and selectees (principal and alternate) will be slated by order of merit, geographic/regional preference, and by skills/experience match. The DAAC approves the final slating. Tenure for each of these positions is 3 years with the ability to extend to 5 years to meet critical program timelines.

c. *Contracting commanders/acquisition directors.* Contracting commanders and acquisition directors will be the best qualified and highest potential military AAW members in the contracting ACF and will be at the lieutenant colonel and

colonel levels. An annual AAC key billet/CSL board process will centrally select these AAW members. Board announcements and application information will be posted by HRC. The announcement will identify the qualifications, the selection and slating process timeline, and all the necessary application requirements. Contracting assignments focus on officers leading teams that provide contracting support worldwide to expeditionary operations throughout the entire spectrum of military operations. These officers will lead contingency contracting teams, contracting efforts for installations, military construction, and weapon systems procurement. They execute contract awards, manage contract administration, and provide industrial management/oversight at contractor facilities worldwide. Contracting officers coordinate the appropriate contracting action with the supported warfighter or program manager to address requiring activity needs at both the Army and DOD level within the U.S. Army Corps of Engineers and the Defense Contract Management Agency.

### **9–43. Program manager development**

PM development required the development of a talent management plan for PMs to gain skills and experience in S&T, T&E, and contracting before becoming a colonel/O–6 or GS–15 PM.

*a.* Development plans for colonel/O–6 and GS–15 or broadband/payband equivalent PMs may vary dependent on personal experiences and career timelines, but will include these specified types of experiences prior to assignment to an colonel/O–6 or GS–15 PM or broadband/payband equivalent position. Army PMs must understand the full lifecycle of the services and materiel to effectively manage the myriad portfolios in which the Army invests. Ensuring PMs are well versed in the operational needs of their users and customers as well as a deeper understanding of all functional aspects of program management only helps the Army provide the best equipment in the right place and at the right time to Warfighters. Having a wide range of training, education, and experience is vital to allowing PMs to reach their full potential. While DAWIA certifications allow officers to become experts in a primary career field, the intent of the following PM development strategy is to provide a unique opportunity to focus additional efforts on our most important resource, the immensely talented population of our AAW.

*b.* To improve on a rotational development program to grow high performing/high potential AAW members utilizing DAWDF funding, the Army DACM office will develop a broadening assignment program for all AAW civilians across contracting, T&E, S&T, materiel development, and sustainment. The program purpose is to enhance talent management and develop leaders who have a broader understanding of the generation and acquisition of Army requirements. MOA with ATEC, AMC, and RDECOM will be established to create experiential assignments for high potential AAW members specifically to ensure acquisition program management colonels and GS-15s' (or broadband/payband equivalents) develop the necessary skills to provide the very best acquisition outcomes. The AAW HCSP provides an annual goal for the utilization of DAWDF to ensure 1 percent of the AAW participates in meaningful developmental assignments.

### **9–44. Military (colonel/O–6) program manager development**

*a.* DA Pam 600–3 outlines that FA–51 officers are functional experts and are, therefore, required to develop expertise in at least one AOC. AOCs for acquisition officers are aligned with the DOD ACFs originally established by the USD (AT&L). For acquisition officers, program management (AOC A) and contracting (AOC C) are the two primary AOCs in which officers should pursue education, training and experience that will lead to professional certification. Focusing on one of these two AOCs will provide the army with the expertise needed to develop, acquire, deliver, and sustain the systems and services needed for our 21st century professional Army. FA–51 officers' ultimate goal is to achieve DAWIA level III certification in their primary AOC before promotion to lieutenant colonel.

*b.* Army acquisition PMs focus on the management of materiel systems or services across all phases of life-cycle management. Continuing education, training, and a wide breadth of experience are all essential to increasing the proficiency of a PM. Table 9–1 outlines relevant cross-functional skills, experiences and assignments for 51As to increase their effectiveness as PMs.

*c.* Program management officers should have a wide range of experiences leading up to their colonel/O–6 CSL PM assignment, including experience in S&T, T&E, and contracting. Senior leadership will manage military PMs to ensure these officers gain experience in multiple functions while serving as an assistant PM in a PEO, based on the Acquisition Workforce Qualification Initiative (AWQI) and acquisition qualification standards. Officers will work with their leadership to ensure the essential experience is documented within their IDP, marked complete within their AWQI workbook, and appropriately annotated on the officer evaluation report. Senior leaders will ensure complete understanding of required experiences and ensure officers are counselled appropriately upon assignment to the PEO. Military PMs will coordinate with their assignment officer to ensure their assignments offer opportunities to gain experience in these functionalities as well as an operational assignment. To gain a deeper understanding of warfighter needs and requirements, Army acquisition officers are required to be assigned for a minimum of 12 months in an operational assignment (for example, division and below, Worldwide Individual Augmentation System tasker, TRADOC, ATEC).

*d.* To ensure proper development of our military PMs, leaders, supervisors and talent managers are required to—

- (1) Ensure newly accessed acquisition officers are trained to DAWIA level III standards in PM and contracting, and level II standards in S&T and T&E prior to their first duty assignment.
- (2) Capture appropriate gained experience through the use of AWQI checklists, IDPs and officer evaluation reports.
- (3) Collaborate to ensure officers are placed in positions to cultivate broadened expertise in various functional areas related to program management as well as an operational assignment.
- (4) Utilize various special operations command, combat training center, and ASA (ALT) forward operating team rotations for officers to gain additional operational experience.
- (5) Ensure the officer career development model encompasses these requirements.
  - e. Additional opportunities to receive operational experience are in table 9–1.

**Table 9–1**  
**Relevant experiences and assignments**

**Relevant experiences**

**Examples: see Acquisition Qualification Standards (AQS) for Program Managers Version 4.6b**

Science and technology	Test and evaluation	Contracting	Operational experience
Assess coverage, gaps, and trade space relative to current/future user needs and current/required science/technology efforts.	Appraise the process for evolutionary testing techniques suitable to an evolutionary acquisition program strategy, and spiral acquisition/development.	Describe conditions that shape whether or not business is conducted in accordance with all applicable laws, regulations, and contractual obligations to ensure boundaries are understood for effective program management.	Rotation as an augmented observer/controller at a combat training center.
Conduct a technology readiness assessment.	Appraise testing required at different ACAT levels DOD 5000 series.	Establish and/or update the requirements for the acquisition of services and/or products.	Rotation in the U.S. Special Operations Command focused on rapid acquisition processes.
Oversee management techniques for reducing the security risks when introducing new technologies into the acquisition process from laboratories and research centers, academia, and foreign and domestic commercial sources.	Appraise value of the test and evaluation strategy and how it can evolve/evolved into the TEMP.	Develop and evaluate the appropriate contract strategy and associated contract documents for services.	
Appraise various S&T processes external to DOD (for example, SBIR).	Appraise need for comprehensive T&E program including modeling and simulation.	Evaluate various contract types and options (cost versus fixed price; sole source, versus competitive, alpha contracting, interagency contracts).	
Compare practices for: protection of technologies, science and technology tracking, technology engineering, and transition techniques.	Compare key T&E stakeholders internal and external to the program, to include communication and collaboration.	Contract management: Ability to guide the development of appropriate documents and focusing contracting actions in pre-award, source selection, and post-award contracting activities relating to acquisition management.	
Evaluate a program's S&T transition team and capability roadmap.	Aid in planning of a developmental or operational test event.	Evaluate contracting lead times and how they impact schedules.	

**Table 9–1  
Relevant experiences and assignments—Continued**

CLMs in Science and Technology Core+ Development Guide section of DAU iCatalogue.	CLMs in Test and Evaluation Core+ Development Guide section of DAU iCatalogue.	CLMs in Contracting Core+ Development section Guide of DAU iCatalogue.	
Level 2 DAWIA training.			
Research acquisition officer.	T&E officer.	Contracting team leader.	Acquisition officer at TRADOC Center of Excellence.
Cyber research manager.	Senior acquisition officer.	Contract management officer.	Worldwide Individual Augmentation System tasker.
Military science advisor.	Evaluation officer.	Contracting brigade/battalion staff officer.	Test officer
Program director	Experimental test pilot.	Program integrator.	Evaluation officer
Acquisition officer (RDECOM).		Administrative contracting officer.	Contracting brigade/battalion staff officer
R&D PM.			ASA (ALT) forward operating team.

**9–45. Civilian (GS–15) program manager development**

The Army Acquisition Reform Initiative also required the establishment of a developmental and broadening experiential program to develop S&T, T&E, and contracting competencies and skills for all AAW civilians prior to their selection and slating as a GS–15 or broadband/payband equivalent level PM. The intent of this initiative is, through the expansion of a broadening assignment program, for acquisition civilians to gain the experience across S&T, T&E, engineering, material development, and sustainment to enhance talent management and develop leaders who have a broader understanding of the generation and acquisition of Army requirements. To meet this intent, the Army DACM office—

*a.* Establishes a developmental assignment program with ATEC, the Office of the Deputy Assistant Secretary of the Army for Procurement (DASA (P)), and RDECOM to ensure civilians gain experience in S&T, T&E, and contracting. This is envisioned to enhance talent management and develop leaders who have a broader understanding of the generation and acquisition of Army requirements. AAW civilians who participate in a developmental assignment will utilize training and competency checklists throughout the assignment to validate experiential learning. Competencies will be identified on the checklist and annotated when completed through the CAMP IDP process and documented as continuous learning points in the IDP. Developmental assignment supervisors will monitor experiences to document competencies gained during the assignment.

*b.* Publishes a talent management plan for civilian PMs which includes valid MOAs, assignments, and competency checklists for broadening assignments with ATEC, DASA(P) and RDECOM.

*c.* Refines the civilian PM career timeline to clearly depict the required experience with an expanded focus on assignments (see fig 9–5).



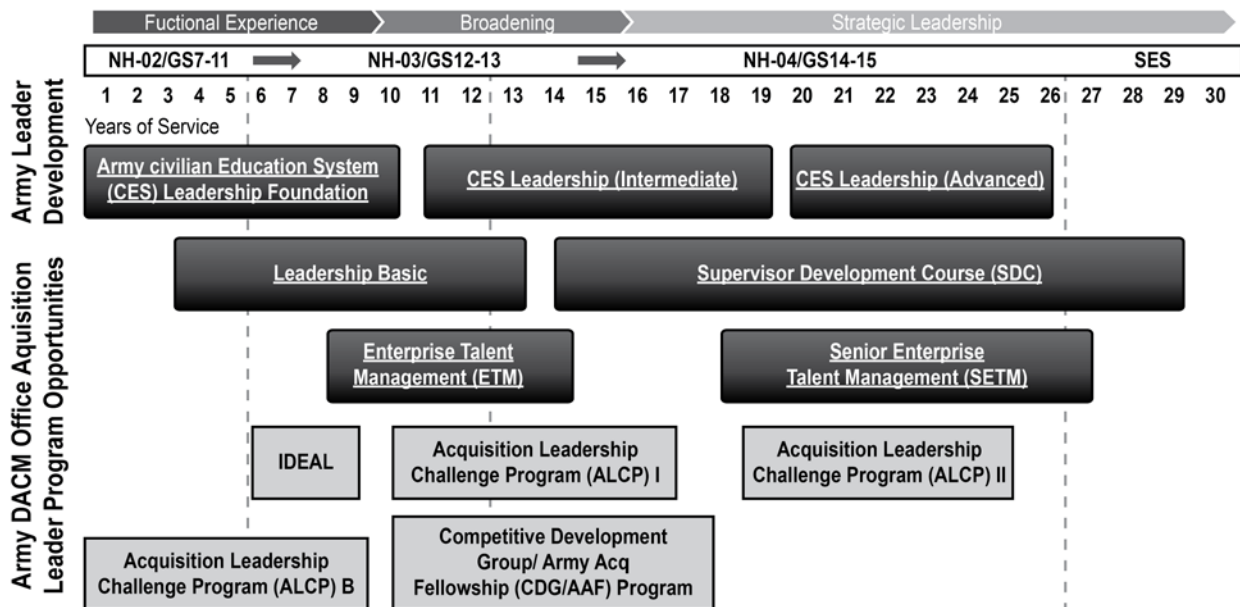


Figure 9-5. Army acquisition civilian program manager development model

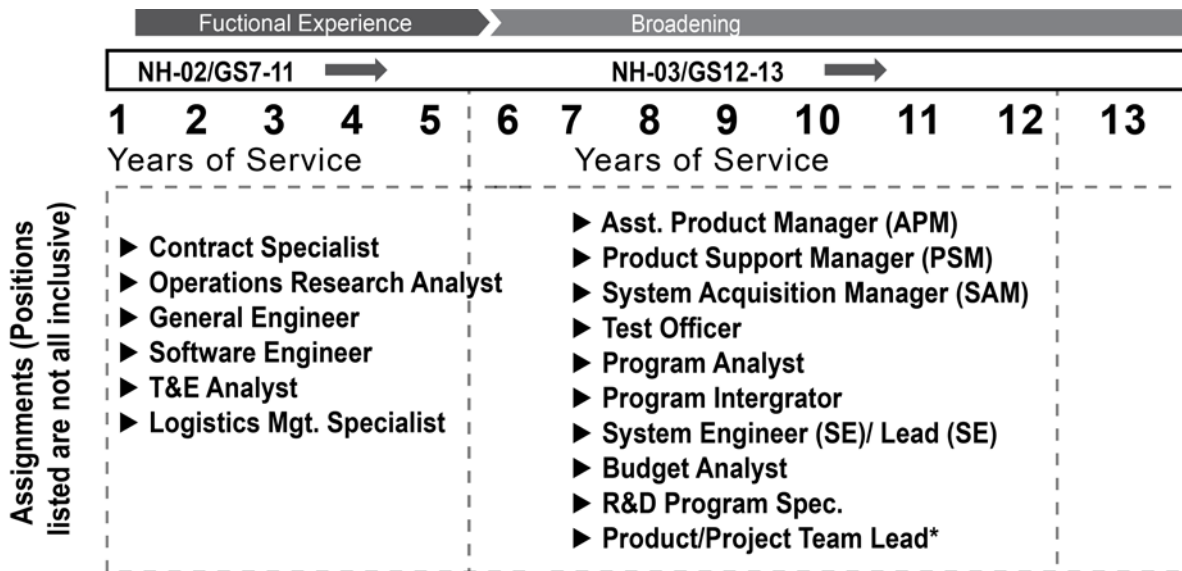


Figure 9-5. Army acquisition civilian program manager development model—continued

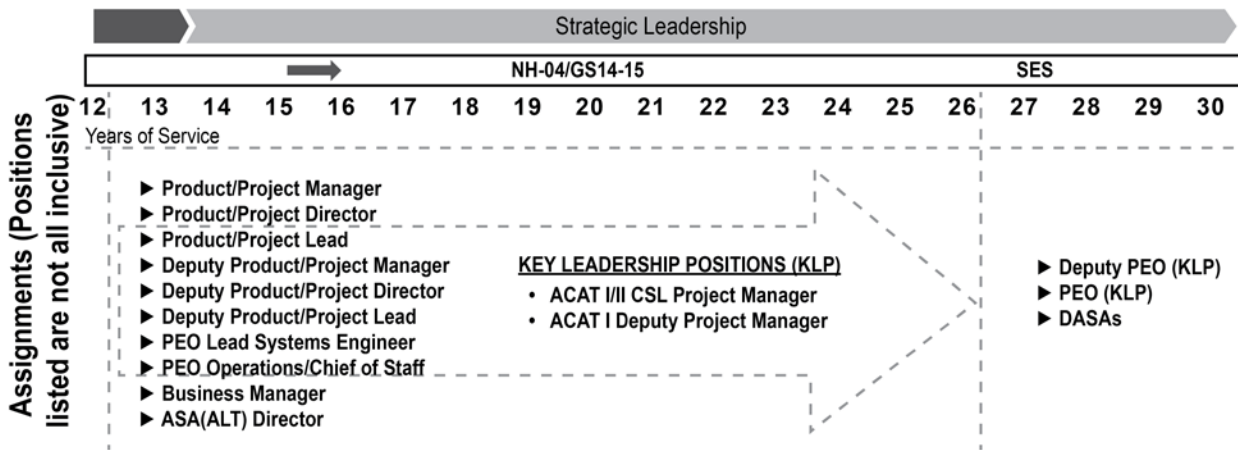


Figure 9-5. Army acquisition civilian program manager development model—continued

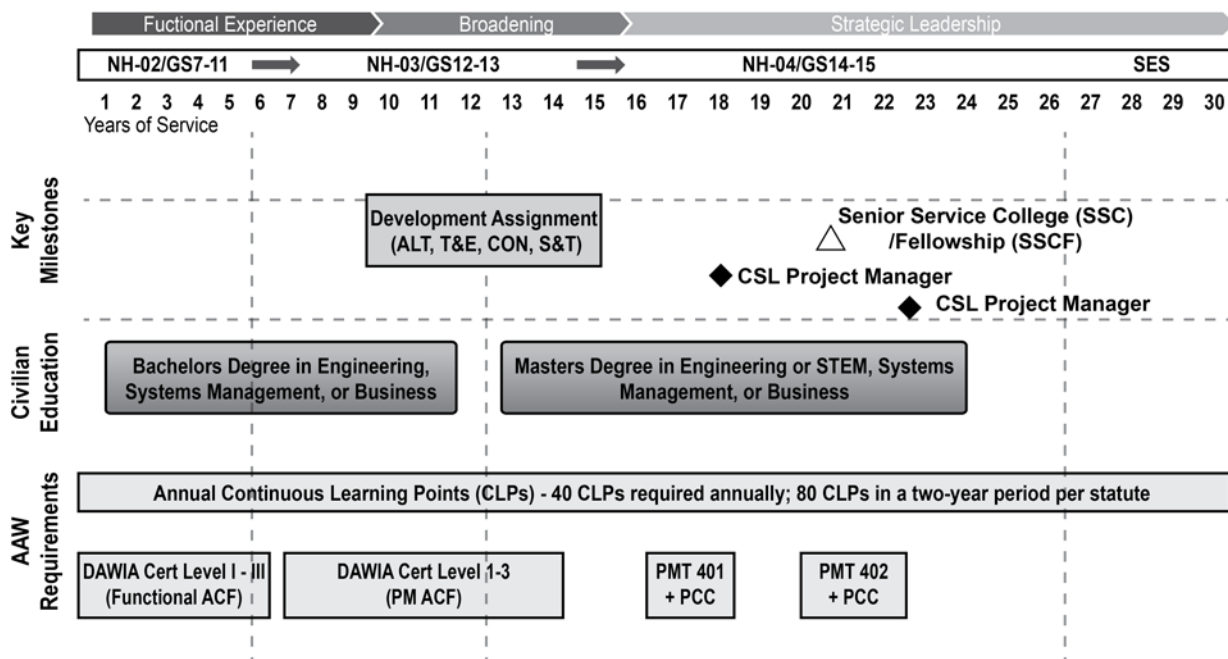


Figure 9-5. Army acquisition civilian program manager development model—continued

### 9-46. Summary

The talent management strategy for our PMs will continue to focus on the alignment and development of the most experienced and professional workforce. PMs will be provided those opportunities prior to their colonel/O-6/GS-15 or broadband equivalent PM assignment to ensure a level of proficiency for the myriad requirements they will face in all phases of the program lifecycle.

## **9–47. Talent management utilization**

Utilization of trained talent is an integral piece of an effective talent management strategy.

*a.* Identified talent and centralized selectees can expect multiple broadening or developmental experience and training opportunities following assignments. Organizations must identify a civilian post-utilization program, following the conclusion of centralized selection tours and/or senior acquisition leader developmental assignments/schooling.

*b.* The post utilization process for our most senior acquisition personnel must not be de-centralized and ad-hoc. This approach has affected the candidate pool for many of our AAW career development/talent management initiatives, and has allowed the AAW to infer that despite completing some of our most prestigious positions and opportunities, they are left to their own recourse for follow on assignments. The Post Utilization Placement Process must commence far enough in advance of the tour/schooling conclusion to enable open dialogue with incumbents, and vetting of the most opportune post utilization assignments and/or schooling.

*c.* Placement of the highest quality participants in senior acquisition leadership developmental and experiential opportunities/positions must be a priority. The selection process for these centralized selection programs will identify our top talent:

- (1) Army Senior Enterprise Talent Management SSC.
- (2) Army CSL PMs.
- (3) AAW CSL PDs.
- (4) AAW SSC Fellows Program.
- (5) AAW Competitive Development Group/Army Acquisition Fellowship Program.
- (6) AAW Emerging Enterprise Leaders Programs.

*d.* The post-utilization for SSC Fellowship graduates, post CSL PMs, and PDs to positions of “higher-level responsibilities” are not always appropriate or available. However, equal-level lateral developmental and broadening experiences that enhance an AAW members’ skills, while allowing them to utilize new-found knowledge, skills, and abilities, is extremely valuable to both the individual and the Army. Every organization must be accountable for not only identifying, encouraging and developing their “top 5 to 10 percent,” but also must develop a plan for and provide opportunities for post-utilization. Post utilization may include a variety of senior leader training opportunities, for example, AAE-directed assignment to an Army or joint staff high priority mission area, SSC/SSC Fellowship; PEO leadership broadening assignment, TWI assignment, Retreat Rights, or one of several other developmental assignments.

*e.* Although lateral reassignments are the common method of assigning selectees to their positions, management directed reassignments are a helpful tool for implementing strategic talent management. PEOs have the authority and flexibility to implement management directed reassignments in order to broaden expertise, create opportunities and increase talent within their organizations.

## **9–48. Retention/recognition programs**

Programs that look for ways to recognize and retain AAW talent ensure a successful talent management strategy.

*a.* We must accentuate what we offer our acquisition workforce that others can’t - the value of being a public servant and of working for DOD; the type of work we do; the fact that people get opportunities early-on to assume more authority and responsibility than they would in private industry; and that a lot of what we do is truly unique work that isn’t done elsewhere. Leaders should use the authorities and the incentives that are in place to keep our best talent. Recruitment and retention does not always depend on financial motivations or incentives.

*b.* One of the best tools for motivating talent and garnering great performance from the workforce can be something as simple as recognition for a job well done. Look at nominating AAW members for awards given throughout the year: the Army Acquisition Executive’s Excellence in Leadership Awards; the Secretary of the Army Excellence in Contracting Awards; and the David Packard Excellence in Acquisition Award from OSD. Recognizing people by taking the time to nominate them for an award sends a strong message. Recognizing hard work and success not only provides great personal incentive, but shares those successes with our broader acquisition community. Use the tools that are there for particular classifications and job series, career fields and categories, most of which are available to almost every organization and member of the workforce. Additionally, nominate the best acquisition talent for training and development programs under the Army’s Senior Enterprise Talent Management and Enterprise Talent Management centrally selected programs.

*c.* Be creative and encourage initiative and creativity, when and where it makes sense. Offer incentives such as telework, alternate work schedules, compressed work schedules, and flexible leave. Use programs like the Voluntary Early Retirement Authority and Voluntary Separation Incentive Pay.

## **9–49. Student Loan Repayment Program**

This AAW, annually funded, centrally selected program is designed to repay federally insured student loans, and can be used as a retention incentive for civilian acquisition employees with critical acquisition skills. The program is centrally

funded by 10 USC 852 from the DAWDF. The AAW Student Loan Repayment Program is considered an incentive program under 10 USC and FY funding is determined and built into the Army FY DAWDF Plan. Each recipient, after approval by first and second line supervisors, receives up to \$10,000 per person, per year, payable directly to the indebted institution. Recipients must reapply each year.

### **9–50. Succession planning**

Succession planning is taking those steps to prepare an organization to maintain its effectiveness when experiencing key leader or key staff member attrition by retirement, promotion or other means. Succession planning is an important element in any talent management strategy and human capital plan. When key personnel leave an organization they take with them the knowledge and expertise required for the job. Oftentimes this knowledge and expertise spans decades. An effective succession plan will ease that transition. The AAE supports succession planning by providing the resources and programs necessary to enable the workforce leadership to execute their succession plans. Each acquisition organization must take the responsibility for its own succession planning and should develop programs that provide a means for accelerating experience, diversification, and development of our future leaders. It is at this level that the most effective measures can be employed.

### **9–51. Dedicated talent management staffing**

AAW talent management strategy is planned and implemented by the AAW talent management branch within the Army DACM office. The AMB within HRC in conjunction with the Army DACM office has assisted in the identification, development and management of military acquisition officers for many years. As a comparative measure, the AMB employs eight full-time officers and six civilians to manage the development and utilization of over 2,000 Regular Army and Army Reserve acquisition officers. AMB provides counseling, military schooling, and assignment guidance and execution for the Army acquisition officer corps. A key to the success of identifying and solving hiring challenges is the placement of a human resources strategist (occupational series 0201) who will be the AAW subject matter expert on DAWIA, acquisition hiring authorities, AAW hiring processes and challenges, and partnering with the Army CHRA to develop a center of excellence strategy for acquisition personnel hiring within the Army. Critical to the implementation of this talent management strategy is the reorganization of our AAW management process. The development and continuous improvement of a team within the Army DACM office with the unique skills required to integrate talent management initiatives, design strategies for development of our AAW, and execute talent management will ensure successful fulfillment of not only statutory requirements and implementation of statutory authorities, but also will facilitate and ensure our ability to comply with Army Acquisition Reform Initiatives.

### **9–52. Special provisions for non-acquisition leadership positions in the Army Test and Evaluation Command**

All non-acquisition military and civilian personnel serving in a leadership position in ATEC are given a higher priority to attend DAU resident courses in accordance with DAWIA of 1990 (10 USC 1735). Accordingly, the AAE directed that the DACM change the training priority placement for ATEC non-acquisition leadership personnel from priority 5 to priority 3. The following procedures are included as part of this policy change:

*a.* Approval of requests from ATEC leadership personnel to attend DAU training is provided by Headquarters, ATEC in coordination with the Office of the DACM, acquisition education and training branch.

*b.* If required, ATEC is responsible for all travel costs for non-acquisition personnel to attend applicable DAU training (DAU travel funds can only be authorized for personnel serving in AAW-coded positions).

## **Chapter 10**

### **Army Unique Procedures**

#### **Section I**

#### **Type Classification and Materiel Release**

##### **10–1. Type classification**

*a.* Type classification (TC) is the Army process used to establish the degree of acceptability of materiel for Army use prior to the expenditure of procurement funds. Acquisition programs are required to obtain TC Standard prior to the Full Rate Production Decision Review.

*b.* The AR 700–142 and DA Pam 700–142 defines the TC process and provides the TC designations, general assignment policy and procedures, exemptions and prerequisites for TC.

## **10–2. Materiel release**

*a.* Materiel release is the process used to ensure that materiel is safe, suitable, and logistically supportable not later than a full rate production decision and issue to Soldiers in the field.

*b.* The AR 700–142 and DA Pam 700–142 defines the process, policy, and procedures for the accomplishment of materiel release.

## **Section II**

### **Management of Program/Product Manager Owned Wholesale Stock and DOD Parts Management Program**

#### **10–3. Management of program/product manager owned wholesale stock guidance**

*a.* On a semi-annual basis, the item manager (IM) should request a printout of Op Code 9 stock by project code. This stock resides in sector/segment 0502 of National Stock Number Master Data Record.

*b.* Printouts should be provided to cognizant PMOs for review.

*c.* Six months prior to disestablishment of a PMO, or termination of a supporting project code, PMs should report excess stock to the appropriate commodity managers for disposition and ensure arrangements are made for disposal/transfer of the stock. The procedures below provide information that may be used as a management tool.

#### **10–4. Management of program/product manager owned wholesale stock procedures**

*a.* Upon receipt of the printout for either the semi-annual review or for disestablishment/termination of the PMO, the PM/IM should review on-hand assets in relation to the current fielding schedule:

(1) Validate the current fielding schedule, quantity, and dates for accuracy.

(2) Provide the IM and total package fielding (TPF) team with updated information if the fielding schedule, quantities, and/or dates have changed.

(3) Identify changes in failure rates, maintenance concept, and so forth, which would cause a reduction in spare parts requirements.

(4) Conduct the review in relation to the latest configuration.

(5) Determine if the on-hand assets are part of the latest configuration.

(6) Program MWOs for those items that can be modified to the latest configuration.

(7) Prepare and provide disposition instructions for items that will not or cannot be modified. Include a review and status of DMSMS reportable items in accordance with DODI 5000.60, DOD 4140.1–R, and AR 700–90.

(8) Dispose of all spares that are not modifiable to a usable configuration.

(9) Prepare disposition instructions if LRIP models remain on-hand.

(10) Review the program for current and anticipated FMS support. Identify current customers and cases currently being written for new customers. Determine availability of spares assets for sale to these customers from OP Code 9 stock.

(11) Determine configuration of the equipment currently used by the potential FMS customer and nature of upgrades to be received (comparable to U.S. equipment?); nature of spare parts support; location or site where equipment modifications will be performed; availability of supporting installation kits, TMDE, and so forth.

*b.* For major items, ASIOE, and configuration management items (CMIs), the PM should—

(1) Provide data interchanges to the IM.

(2) Identify and notify the IM of any significant changes in deployment occurring since the last data interchange.

(3) Review contracts for impact of changes to deployment schedules and/or density.

(4) Review capabilities documents with TRADOC to ensure that right sizing of the Army is reflected in procurements and data interchanges.

*c.* Other actions the PM should take include but are not limited to—

(1) Offer excess assets back to the original owners or commands.

(2) Determine if dollars or parts are available and schedule unserviceable assets (condition code (cc) F) for maintenance.

(3) Deliver uneconomically repairable (cc H) assets to Defense Reutilization Marketing Office (DRMO) for disposal.

(4) Prepare plans for disposal of special tools and test equipment (STTE), Installation Kits, and MWO Kits not otherwise required for fielding.

(5) Prepare plans for disposal of ASIOE, STTE, Installation Kits, industrial plant equipment, and so on when the contract is complete or terminated. Coordinate with HQ AMC concerning impacts to the Army's industrial base and DMSMS program in accordance with DODI 5000.60, DOD 4140.1–R, and AR 700–90.

### **10-5. DOD parts management program**

The DOD parts management program ensures that standardization of parts, materials and processes are achieved to the highest degree practical to meet the end item's objectives. With varying system level objectives it is imperative that some degree of parts standardization be realized so that costs are reduced (company, service, or DOD), reliability is increased, and obsolescence is managed. Addressing and implementing a program that satisfies these key elements results in increased readiness, interoperability between services and alliances, and reduces the total cost of ownership for the program. MATDEVs should refer to MIL-HDBK-3018 and SD-19. Ensure HQ AMC has been notified to address impact(s) to DODs DMSMS program, Army's single stock fund (SSF) management, and support to the National Maintenance Program (NMP) in accordance with DODI 5000.60, DOD 4140.1-R, and AR 700-90.

## **Section III**

### **Materiel Status Record Program**

#### **10-6. Materiel status record purpose and procedures**

a. This section describes the procedures for uniform recording and submission of decisions and actions pertaining to TC or reclassification; changes in nomenclature, NIINs and LINs; and recording data in the materiel status record (MSR). CTA items not having personnel, maintenance, or training impacts are exempt from MSR submission.

b. The materiel status office (MSO) receives, coordinates, maintains and distributes the materiel status actions reported by MATDEVs. The AMC (LOGSA) is designated MSO for the Army. All decisions and actions received are recorded in the MSO. A unique MSR number is assigned to each action. A record of these decisions and actions is recorded on the HQDA SLAMIS website within the Reports & Extracts area of type classification and is identified as the MSR Report. This report is down-loadable by any approved SLAMIS user in query format for separate bi-monthly or fiscal year reporting periods.

c. Additional SLAMIS reports consider the Type Classification Request Pending Action Report that provides all TC actions that: remain pending SLAMIS coordination; IMMC TC Request Tracking Report by RIC that allows IMMCs to track all their TC processing actions on the SLAMIS website; and others to assist IMMCs, PMs, and LOGSA in completing TC processing actions already begun.

d. The MATDEV reports only those sections that apply to the decision or action being recorded. Sections include the following:

(1) Section 1-Decisions pertaining to TC or reclassification of materiel. HQDA SLAMIS automated MSR modules relevant to these decisions are: initial ZLIN/NIIN Type Classification and Authorization to Reclassify and LIN/NIIN Re-classification modules respectively.

(2) Section 2-Decisions to add or delete NIIN(s) or change NIIN Nomenclature and/or other LIN data. The HQDA SLAMIS automated MSR module relevant to these decisions is the MSR Updates.

e. To ensure a chronological history of each research and development item of equipment, each item will be reported in sequence. For example, before a submission of change in NIIN, nomenclature, and/or LIN data can be recorded (section 2), section 1 should have been submitted previously. Chronological reporting will provide a composite picture of any item in the automated materiel status record system.

f. The MATDEV submits the results of the TC decision within 15 working days from the decision data via the appropriate HQDA SLAMIS automate MSR module. The record of action or decision will be submitted per instructions in paragraphs b-e, above and must contain:

(1) A scanned copy of the MDA certification within a .pdf file not to exceed 1MB that is loaded into the SLAMIS website and submitted as part of the automated MSR request.

*Note.* Multiple .pdf files may be loaded into SLAMIS for a particular SLIN request provided each .pdf files does not exceed 1MB.

(2) For reclassification of an item, the originator of the request will first initiate an Authorization to Reclassify on the HQDA SLAMIS Web site that requires on-line HQDA (DAMO-FM/DALO-OR/DAPR-FD), AMC (AMCOPS-SL), and TRADOC (ATFC-RA) concurrence. Following a SLAMIS e-mail alert acknowledging to the originator that the concurrence has been achieved, they will initiate a SLAMIS LIN/NIIN Reclassification MSR request to LOGSA that will procedurally enclose the recorded HQDA, AMC, and TRADOC concurrence as a record copy.

g. The automated MSR with enclosed record of coordination will be jointly received and processed by the Materiel Status Office and the SB 700-20 file Maintenance Team.

h. LOGSA will then verify the automated transactions and release to HQDA for final approval and SB 700-20 publication data.

### **10–7. Materiel status record format**

*a.* The formats for the required HQDA SLAMIS Authorization to Reclassify and automated MSR modules necessary for accomplishing type classification, reclassification, and changes to automated MSR actions needed to update the SB 700–20 are exempt from management information control per AR 335–15, paragraph 5–2*b*(9).

*b.* Any activity subscribed to the HQDA SLAMIS website may initiate Authorization to Reclassify or automated MSRs to meet Armywide needs. The HQDA SLAMIS website has on-line tutorials that provide users with step-by-step procedures in the use of these automated MSRs and the Authorization to Reclassify module. Also, the SLAMIS Help Desk will provide users with assistance with any technical or non-technical problem encountered. SLAMIS Help Desk e-mail is [slamishelpdesk@calibresys.com](mailto:slamishelpdesk@calibresys.com).

*c.* The only required enclosure for submission of an initial TC request is a scanned (.pdf file) of the memorandum documenting the decision and signed by the MDA. The scanned document must be legible, signed by the appropriate MDA authority, dated, and preferably be on letterhead stationery.

## **Section IV**

### **Soldier Enhancement Program**

#### **10–8. Soldier Enhancement Program**

Several areas of material requirements have such unique circumstances that singular processes have been developed for the requirement definition and/or acquisition. One of these areas is the Soldier Enhancement Program (SEP). The SEP encompasses all items worn or carried by Soldiers in a tactical environment, and is designed to improve/enhance the Soldier's lethality, command and control, sustainability, mobility and survivability. Basically, the SEP follows the same materiel acquisition process as a typical materiel acquisition program. The major thrust, however, of the SEP is to identify and evaluate commercially available individual weapons, munitions, combat clothing, individual equipment, food, water, shelters, communication, and navigation aids in order to get successful items into the hands of the Soldier in less than three years.

#### **10–9. System evaluation plan procedures**

Proposals for the system evaluation plan (SEP) can be generated by anyone and go before the SEP Executive Council at least twice each year. The Executive Council is co-chaired by the PEO Soldier and TCM–Soldier. The council validates and prioritizes all SEP proposals and forwards to DCS, G–3/5/7 for Army prioritization and funding. After SEP proposal are validated, the originating school may begin processing the SEP capabilities document (in other words, a CDD or CPD as appropriate under the Soldier as a System concept). The JCIDS format is used, but is streamlined to the maximum extent possible so that it only contains necessary operational requirements tailored to that individual system. PEO Soldier then executes the funding for all SEP programs. Approval guidelines for SEP follow the same procedures as other acquisition programs.

## **Section V**

### **Acquisition Program Baseline Army Guidance Package**

#### **10–10. Overview**

*a.* In accordance with 10 USC 2435 and 2220, and DODI 5000.02, every acquisition program will establish an acquisition program baseline (APB) beginning at program initiation (generally Milestone B). The APB documents program performance, schedule, and cost objectives and thresholds. The PM bases the APB on users' performance requirements, schedule requirements, estimated total acquisition cost and total sustainment costs. Performance includes interoperability, supportability, survivability, net readiness, and, as applicable, environmental requirements. An APB is not a title 10 requirement at Milestone A since the project does not yet represent an approved materiel solution. Specifically, the capabilities, procurement funding, and overall schedule are not yet established.

*b.* The program's MDA approves the APB. An APB is a contract between the PM and the MDA. The APB documents the program's agreed-upon objectives and thresholds for key performance, schedule, and cost parameters as the program is expected to be developed, produced and/or deployed, and funded. Properly prepared, coordinated, and approved APBs are vital to sound acquisition oversight and provide a historical record of the program's evolution through its acquisition life cycle. ACAT I and IA programs (as well as those for which MDA is retained by the AAE) submit their APBs via the APB module in the Defense Acquisition Management Information Retrieval (DAMIR) system at

<http://www.acq.osd.mil/damir/>. All other Army programs submit APBs through the local chain of command to the appropriate MDA. The APB Module in the DAIMIR system is intended to be available in the future for Army non-MDAP and MAIS programs to create, store, submit, and make changes to their APBs.

c. Programs with APBs that have experienced breached parameters are required by 10 USC to submit a Program Deviation Report notifying the MDA when the PM feels the breach is unrecoverable. The PM then has 90 days to re-baseline the program or to lay out to the MDA a specific plan to have it re-baselined.

## **10–11. Acquisition program baseline parameters**

a. *Introduction.* The APB parameter values represent the program as it is expected to be produced or deployed. The APB contains only those parameters that, if thresholds are not met, will require the MDA to reevaluate the program and consider alternative program concepts or design approaches.

b. *Key performance parameters.* Beginning with program initiation, the APB documents the program's goal for the minimum number of essential performance, schedule, and cost parameters. KPPs are those performance parameters whose thresholds, if not met, would require an evaluation by the MDA (special ASARC) to consider alternative acquisition approaches or possible program termination. Cost parameters for base year (BY) RDTE, Procurement, and Military Construction (MILCON) appropriations have both objective and threshold values. ACAT ID and IC unit cost parameters (APUC and PAUC) also have objectives and thresholds. Then-year (TY) costs and all other BY costs require only objective values and are not considered breachable.

c. *Trade space.* Cost, schedule, and performance may be traded-off within the range between the objective and the threshold values (known as "trade space") without obtaining MDA approval. The PM may not make trade-offs outside the trade space without user concurrence and the approval of the MDA. In addition, KPPs require validation by the JROC or requirements determination authority and may not be traded-off without its review and approval.

(1) *Objectives.* The objective value represents what the user desires and that which the PM attempts to obtain when writing a contract Statement of Requirements for the program. An objective should represent an operationally meaningful, time critical and cost-effective value that is better than the threshold for each program parameter. Program objective values may be refined based on the results of the preceding program phases.

(2) *Thresholds.* The threshold value is the user's minimum acceptable value necessary to satisfy the need. If threshold values are not achieved, program performance may be seriously degraded, the program may be too costly, or may not be delivered in a timely manner. When the PM's current estimate falls outside the objective-threshold trade space, the program's APB is considered to be in breach. The spread between objective and threshold values varies and is established based on the characteristics of each program. If specific threshold values are not identified in the program's capabilities document, the following default values apply:

(a) The default performance thresholds are the same as the objective values. In cases where the performance parameters are numeric values and the objective and threshold values are the same, it is recommended that the values be qualified by using less-than-or-equal-to ( $\leq$ ) or greater-than-or-equal-to ( $\geq$ ) symbols. This allows reviewers to identify the relative meaning of the value (better or worse than the indicated value).

(b) The default schedule thresholds are the objective value plus six months. These may be manually widened individually based on risk. Add a footnote addressing the reason extending a schedule parameter beyond the default value is recommended to facilitate timely review and approval of the proposed APB.

(c) The default cost thresholds are the objective value plus 10 percent. These may also be adjusted individually based on risk. A footnote addressing the reason for extending cost threshold beyond the default value is recommended to facilitate timely review and approval of the proposed APB. The PM's current estimate for cost should be based on the prior President's Budget plus fact of life changes.

(3) *Key performance parameter/performance, schedule, and cost.*

(a) A program's capabilities document specifies a minimum number of key performance parameter (KPPs) that are sufficient to guide program efforts. The requirements authority validates the KPPs. The PM, in coordination with the MDA, may add additional performance parameters by exception to assist in guiding the efforts of the current phase. The number and values of parameters may evolve throughout the acquisition life cycle phases.

(b) Schedule parameters include program initiation, major milestone and life cycle decision points, major test event start and finish points, IOC, FRP, FUE, and any other system event desired by the PM or MDA as long as it is considered a "critical path" parameter.

(c) Cost parameters are standardized in DAIMIR for ACAT I programs and include RDTE, Procurement, MILCON, and acquisition related operation and maintenance (O&M) and O&S costs. The cost section also includes total quantity of production-representative RDTE and Procurement units. ACAT I programs are required to include PAUC and APUC. Unit costs are not required as part of the APB for non-MDAP programs. Therefore, unit cost breaches are not applicable for these programs.



## 10–12. Acquisition program baseline preparation

a. The PM, in coordination with the user, prepares the APB to support the program initiation milestone decision review. The APB is required to be revised at subsequent program milestone reviews (Milestone B, C, FRP) and in the case of major program restructures. The PM, PEO, and/or AAE, as appropriate, concur with the APB revisions and sign the cover sheet prior to approval. The revised APB is submitted to the MDA for approval. The MDAs approval date becomes the date of the current APB.

b. For ACAT I programs, the PM develops the proposed APB using the IPT process and submits reports through DAIMIR. The PM submits the APB through the PEO to OASA (ALT) DASC. The DASC coordinates (staffs) the APB with appropriate DA staff elements and submits it for AAE concurrence/approval. All acquisition programs at or beyond program initiation are required to have a current APB.

c. For ACAT II and III programs that do not report through DAIMIR, the PM develops the proposed APB and submits it through the acquisition chain of command for MDA review/approval.

d. For ACAT I programs, the information in the APB automatically populates the quarterly Defense Acquisition Executive Summary (DAES) report to the DAE via the quarterly “Universal Acquisition Data Display and Entry” (UADDE) report in the Army’s AIM system, and for MDAP programs, the annual selected acquisition report (SAR) to Congress.

## 10–13. Acquisition program baseline content

The following information provides a basis to assist the PM in developing an initial APB and proceeding through the program’s acquisition life cycle. It may also serve as a checklist when reviewing APB documentation content. The APB should include only those performance, schedule, and cost parameters that are deemed “critical path” parameters necessary to successfully execute the program.

### a. Defense acquisition.

(1) *Single step development.* Programs structured to proceed by increments reflect the incremental structure in the APB. In accordance with DODI 5000.02, in this process, a validated end-state requirement is known, although the technology may still be under development. Each increment is developed and fielded to provide the user with the best possible capability that the current technology can support. As the technology matures, subsequent increments are developed and fielded until the end-state requirement is met. Programs utilizing an incremental development strategy will identify separate life cycle milestones in the APB for each increment.

(2) *Evolutionary development.* The way a program’s requirements are defined is the principal difference between a single step development program and an evolutionary development program (both are forms of defense acquisition as defined by DODI 5000.02). If a desired capability is identified, but the end-state requirements remain unknown, the program is considered to be proceeding on an evolutionary development strategy. The program structure is still broken into increments. Each increment is developed and fielded to provide the user with the best possible capability that the current technology can support. As the technology matures, subsequent incremental requirements are defined by the CBTDEV and developed and fielded by the MATDEV. Programs utilizing an evolutionary development strategy must still identify separate life cycle milestones in the APB for each increment.

### b. Performance.

(1) The total number of performance parameters is the minimum number needed to characterize the major drivers of operational performance (including effectiveness and support), interoperability, schedule, and cost. This minimum number includes the KPPs identified in the program’s approved capabilities document. The value of a threshold or objective in the APB will not differ from the value in the capabilities document, and the definitions will be consistent. If the capabilities document identifies an incremental approach (versus a single step approach), the performance section of the APB should be structured in the same manner. The PM or MDA may add additional performance parameters but they should be limited to those considered “critical path” parameters.

(2) The number and specificity of performance parameters increase with time. Early in a program the PM uses a minimum number of broadly defined, operational-level measures of effectiveness or performance to describe needed capabilities. These capabilities may evolve over time as the program progresses to the next major milestone.

(3) APBs will include increased focus on RAM scope. PEOs/PMs will be held accountable for achievement of RAM requirements.

### c. Schedule.

(1) Schedule parameters describe the “critical path” necessary to execute the program. Schedule parameters minimally include dates for program initiation, major milestone decision points, major test events, IOC, FUE and the FRP decision review. Although the PM may propose other critical system events as necessary, they should be the PM’s prerogative. The PM should not be coerced to include events that he does not consider “critical path” events. The following is a common list of schedule parameters:

(a) Major milestones (mandatory).

- (b) Development test and operational test start and finish (mandatory).
  - (c) Contract Awards (if applicable and only if considered part of the “critical path”).
  - (d) IOC/FUE (mandatory).
  - (e) First delivery dates for prototypes (only if considered part of the “critical path”).
  - (f) First delivery dates for production (only if considered part of the “critical path”).
  - (g) Preliminary and Critical Design Reviews (when system specifications are frozen and only if considered part of the “critical path”).
  - (h) DRR (optional; based on MDA guidance).
  - (i) Production Readiness Tests start and finish (only if considered part of the “critical path”).
  - (j) Logistic readiness dates (only if considered part of the “critical path”).
  - (k) Other specific “critical path” system events.
- (2) Commercial software-based systems being developed following the enterprise resource planning (ERP) model may replace production type schedule parameters with critical path items such as blueprinting, version releases, and so on. These parameters will be determined by the PM and MDA. These will usually be MAIS or IT-type programs.
- (3) In-house IPRs, sub-contract awards, and intermediate reviews should be kept to a minimum in the schedule section of the APB since they tend to shift. Including them in an APB decreases the PM’s flexibility and requires a formal APB revision when they fall outside the agreed-upon Objective-Threshold trade space.
- (4) The schedule should be consistent with the acquisition strategy report (ASR) and both the APB and ASR should be staffed concurrently when possible. (The ASR is only required in support of major milestone decisions and upon major program restructures. It is not required to be updated in the event of an APB breach). The objective date for the schedule is the date the activity is desired to occur. The threshold is the latest date that is acceptable to the PM for the activity to occur (after which the PM declares an APB schedule breach).

*d. Cost.*

- (1) The APB cost parameters identify life cycle direct costs (RDTE costs; procurement; military construction; operations and support (to include training); and the costs of acquisition items procured with operations and maintenance funds, if applicable). While costs of production modifications and initial spares are included in the APB, modifications to fielded items and replenishment spares should not be included. ACAT I programs are required to report APUC (defined as the total procurement cost divided by total procurement quantity) and PAUC (defined as the total of all acquisition related appropriations, divided by the total quantity of fully configured or production representative end items). ACAT I programs include a breakout of recurring and nonrecurring flyaway and support costs in their initial APB and at major milestones as indicated in DAIMIR. Although this breakout does not appear in the final APB, it feeds into the program’s SAR report (this breakout is not required for non-SAR reporting programs). ACAT I programs revising their APB to reset a program breach do not require a flyaway and support cost breakout. All programs must also enter Procurement and RDTE quantities in the cost section. Quantities are limited to production and production-equivalent (fully configured) end items and do not have thresholds.
- (2) Cost parameters are developed in TY and BY dollars. Then-Year (current) dollars include the effects of inflation and reflect the price levels expected to prevail in the current period. TY dollars are the dollars that appear in the President’s Budget. TY cost parameters in the APB do not have thresholds and are not breachable. The Base-Year (constant) dollars allow comparison of dollars over several years by removing the inflation effect and showing all dollars at the value they would have in a selected base year. Thresholds are required for BY RDTE, Procurement, and MILCON in the APB. The cost section of the APB for ACAT I programs will be consistent with the Army Cost Position (ACP) unless directed otherwise by the DAE. ACAT II and III programs will utilize the program office estimate (POE) unless directed otherwise by the AAE. The ACP is the reconciliation of the component cost analysis (CCA) (developed by DASA–CE) and the PMs POE. The DASA–CE also considers the cost analysis requirements description (CARD) as a base document for the program. The ACP tests the reasonableness of the POE and provides an independent opinion of the system’s cost. ACAT I programs that have breached an APB parameter are required to reflect any cost implications in the revised APB but are not required to develop a new ACP. However, a new ACP is required at program milestones and upon program restructure.
- (3) The PM develops the POE. A POE is a life cycle cost estimate prepared to support specific acquisition requirements. The CARD is a key element in developing the POE and includes the system description, acquisition strategy, fielding plan, and projected operations. A validated cost position is required before a program can proceed to a major milestone decision point or be initiated via an ASARC or AAE review for ACAT IC/IAC programs (DAB or DAE review for ACAT ID programs; ITAB or DAE review for ACAT IAM programs). Program managers of ACAT II and III programs where the AAE is not the MDA are encouraged to obtain an independent cost review of the POE before including it in the cost section of the APB.

(4) For ACAT IC/IAC programs, a Cost Review Board (CRB) reviews the proposed ACP after an intensive review of both the POE and CCA. This proposal becomes the ACP when approved by the ASA (FM&C) and is included in the APB. The APB is then coordinated with HQDA staff and forwarded to the AAE for final Service approval.

(5) For OSD-managed programs (ACAT ID or IAM), the OSD CAIG prepares an independent cost estimate (ICE) at major milestone decision points. Public Law (10 USC 2434) requires this separate cost estimate before the program may proceed to a milestone decision to request MDA approval to enter the next acquisition phase. The CAIG compares the ICE with the ACP and reconciles any differences in the CAIG Estimate. As a program evolves and better data becomes available (contract awards and other fact-of-life events), the POE and CCA are refined as appropriate. Formal reviews take place at each major milestone and will be reflected in the updated APB.

## 10–14. Administrative processing

The following steps focus on the staffing process for ACAT ID/IC/IAM/IAC and ACAT II programs for which the AAE is the MDA. The PEO normally serves as the MDA for other ACAT II and all ACAT III programs. For DAIMIR-reporting programs, the PMs submit the APB to the PEO for concurrence and on to the OASA (ALT) DASC for DA staffing and Army/OSD approval.

*a. When the MDA is at DA/OSD.* The PM prepares the draft APB in the latest available DAIMIR and releases it to the PEO in DAIMIR for concurrence (hard copies may be printed for staff review and PEO approval if desired). Until electronic signature capability is included in DAMIR, the PM and PEO must sign a hard copy signature sheet. The PEO staff submits the following to the DASC:

(1) Draft electronic APB in DAIMIR. (PM and PEO will establish approved releasers at each level that are authorized to release the APB upward to the next level in DAMIR. To change access authority for PM and PEO staff, contact the Program Visibility, Analysis and Reporting (PVAR) section (SAAL–SSI) at HQDA, (703) 604–7439.)

(2) Approved original cover sheet memorandum signed by PM and PEO. A scanned copy can be submitted for DA staffing, but the original is desired to be delivered to the DASC for AAE concurrence/approval.

*b. Typical staffing.* The program DASC conducts and monitors APB DA staffing. This can be accomplished electronically by distributing copies via e-mail or reviewers can be directed to DAMIR to review and leave discussion comments. Comments received during DA staffing will be reviewed/resolved in coordination with the DASC and the PMO. DA staffing normally takes two–four weeks unless major issues arise. Staffing typically includes the following offices for ACAT I programs:

- (1) SAAL–ZS for systems management (the program’s DASC who conducts the process).
- (2) SAAL–SSI/PVAR for analysis, assessment, and reporting policy.
- (3) SAAL–ZP, for procurement.
- (4) SAAL–ZL for policy.
- (5) SAAL–RI for program resources.
- (6) Secretary of the Army Office of the General Counsel (SAOGC), for legal issues.
- (7) DASA–CE for cost.
- (8) DCS, G–8–PA&E for affordability analysis.

*c. As-needed staffing.* Other offices that may provide a review function on a case-by-case basis include:

- (1) DCS, G–4/SAAL–ZL for logistics issues.
- (2) Army Test and Evaluation Executive for testing.
- (3) CIO/G–6 for information/communications systems.
- (4) DCS, G–3/5/7 for requirements (interfaces with JROC).
- (5) DCS, G–8–FD for DOTMLPF–P Force Development.
- (6) Others as required.

*d. Approval.* Once all comments are resolved and all staff concurrences are received, the APB is submitted to the ASA (ALT) Staff Actions Control Office (SACO) for coordination control. The APB requires concurrence from the Deputy Assistant Secretary of the Army for Acquisition and Systems Management (SAAL–ZS) or his deputy before going to the ASA (ALT) Military Deputy. Once it has successfully cleared these reviewers, it goes to the AAE for approval or Army concurrence prior to submittal to OSD if required (ACAT ID/IAM). The AAE approval process normally takes approximately one–two weeks.

*e. Final steps.*

(1) If the AAE is the MDA, the DASC and PVAR will coordinate with the DAIMIR team at OSD to insert the approval date on the APB in DAIMIR and add a SAR baseline if required. The scanned signature page is uploaded to DAIMIR under “Supporting Documentation” to complete the process.

(2) If the MDA is at the OSD level, the DASC delivers the Army-approved APB (with AAE hard-copy signature page) to OSD (USD (AT&L) or ASD (NII)) for staffing and approval. OSD staffing roughly mirrors the DA staffing and approval

process in review agencies and timeframes. Contact PVAR at HQDA for appropriate USD (AT&L) or ASD (NII) action officers. Once the OSD MDA gives final approval, the process is completed in DAMIR, as above.

### **10–15. Acquisition program baseline breaches/program deviations**

A program deviation occurs when the PM has reason to believe that the current estimate of a performance, schedule, or Base Year cost parameter is outside the threshold value for that parameter. The APB breaches can be one of two types, “programmatically” or “fact-of-life”.

*a. Programmatic breach.* Factors outside the PM’s management control (external factors) can cause a program deviation. These breaches, referred to as “programmatically breaches,” may be the result of guidance from above the program office level. Several factors can cause these breaches such as doctrinal revisions, program restructuring, requirements changes, or budget-related quantity and dollar changes. Even “good-news” events such as quantity or funding increases can cause the current estimates to fall outside the threshold and cause an APB breach.

*b. Fact-of-life breach.* A fact-of-life (FOL) breach is an internal cost-growth, management or technical problem leading to a breach of the program’s performance, schedule, or cost parameters.

*c. Management review.* A PM management review is conducted whenever an APB breach occurs. The type of breach determines the extent and depth of this management review. A programmatically breach caused by funding cuts or force structure changes normally is not as problematic as FOL breaches caused by operational problems such as contractor difficulties (performance/deliveries), internal cost growth, and/or technical challenges.

### **10–16. Resolving breaches/program deviations**

*a. Notification.* As soon as an unrecoverable breach to the APB occurs, 10 USC requires the PM to notify the MDA that a deviation has occurred or will occur based on available information. This is done via a program deviation report (PDR). There is no special format; the PDR can be an e-mail from the PEO to the MDA or a formal memorandum. The guiding principle should be timely notification of the event rather than a voluminous briefing, an extensive program history, or plan of action. The notification should be brief and include the reason for the program deviation; the actions the PM believes are necessary to rectify and reset the breached parameters; as well as a proposed timeframe for submission of the proposed, revised APB. If a program restructure is recommended, the PEO/PM should coordinate through the program DASC to present their restructured plan to ASA (ALT) leadership. ACAT II/III program managers where the AAE is not the MDA submit the PDR to their PEO. ACAT II PMs should provide an info copy through the program’s DASC to SAAL–ZS.

*b. Assistance.* The PMs should consult with PVAR before a program breach is declared. PVAR will assist the PM to standardize and simplify the process. Include the revised Current Estimate indicating the breach in the next DAES submission for ACAT I programs.

*c. Performance breaches.*

(1) A performance parameter breach may require a capabilities document change, convening of a Configuration Steering Board (CSB), or a cancellation of the program if the system cannot demonstrate its required performance capabilities. Either the DAE (for ACAT ID/IAM programs), or the AAE (for ACAT IC, IAC, and select ACAT II programs) is the ultimate decision authority. For ACAT II/III programs, the PEO must discuss any potential program termination with SAAL–ZS and then the AAE and MILDEP.

(2) When a performance breach occurs, the JROC will investigate and validate any changes to the performance section of the APB. The DCS, G–3/5/7 and G–8 provide formal interface/coordination with the JROC.

*d. Schedule breaches.* When a schedule breach occurs, changes to the schedule objective and threshold dates may be considered as a means to ensure successful execution of the program. If an ACAT ID/IC (MDAP) program experiences a schedule breach of six months or more, there may be a requirement to submit a SAR to Congress at the end of the quarter in which the breach occurred. Coordinate with PVAR and USD (AT&L) for additional guidance.

*e. Cost breaches.* When a cost breach occurs, the PM should coordinate with the program’s DASC, SAAL–RI, and DASA (CE) to ensure that any revised cost positions are funded before submitting the APB. Cost breaches should be based on the prior Presidents Budget plus FOL change or an approved cost position. Program Objective Memorandum or BES lock positions are not sufficient to support an APB breach declaration.

### **10–17. Major Automated Information Systems (MAIS) breaches**

This process was introduced in 2008 and continues to evolve. Refer to the Defense Acquisition Guidebook for updated procedures on managing MAIS program breaches.

a. MAIS APB breaches are handled similarly to MDAP breaches. In the 2007 National Defense Authorization Act, Congress introduced a “Nunn-McCurdy-like” breach process for MAIS programs. In January 2008, MAIS programs submitted an initial MAIS annual report (MAR) to Congress. Newly-designated MAIS programs will submit an initial MAR on the next annual cycle after program initiation. The MAR includes the APB, and has additional breach parameters, which require Congressional notification if breached:

- (1) Significant breach criteria:
  - (a) Exceeding initial MAR Acquisition cost or lifecycle cost by 15 percent.
  - (b) Exceeding MAR schedule parameter by six months.
- (2) Critical breach criteria:
  - (a) Time certain development – exceeding five years from Milestone A to IOC.
  - (b) Exceeding initial MAR acquisition cost or lifecycle cost by 25 percent.
  - (c) Exceeding MAR schedule parameter by 12 months.
  - (d) Inability to meet any KPP in the initial MAR.
- b. A PDR should be submitted to the MDA in the case of any of these breaches similar to the Nunn-McCurdy process.
- c. The AAE will notify Congress similar to the Nunn-McCurdy process below in case of significant or critical breaches.
- d. In case of a critical breach, the AAE will conduct a certification and submit it to Congress within 60 days of the breach notification. This is a compressed version of the Nunn-McCurdy certification process, and will not go into the detail that the MDAP certification process covers.
- e. There is no requirement for a quarterly MAR in the case of a significant or critical breach.
- f. Failure to submit the notification or certification on time will result in a loss of obligation authority. It is reinstated upon receipt of the notification or certification.

#### **10–18. Nunn-McCurdy unit cost breach reporting**

a. *Statutory reference.* Title 10, USC, Section 2433 mandates Unit Cost Report (UCR) and unit cost (UC) breach reporting. Reporting is generally included as part of the quarterly DAES report. Unit cost reporting applies only to MDAPs at or beyond Milestone B.

b. *Unit cost measures.* There are two unit cost measures in the APB:

- (1) *Program acquisition unit cost (PAUC).* Total funding for RDT&E; Procurement; MILCON; and acquisition related O&M, divided by the total number of fully configured end-items to be procured; and
- (2) *Average procurement unit cost (APUC).* Total procurement funding divided by the total number of procurement funded units.

c. *Unit cost measurement.* Unit costs are measured in two ways: against the program’s current APB and against the original APB that was approved at program initiation.

(1) *Current APB.* Unit cost growth of 15 percent against the current APB represents significant cost growth (measured in Base Year dollars). If a program incurs 25 percent unit cost growth against the current APB, that is considered critical cost growth. Historically, current-APB unit cost breaches based primarily on programmatic (externally-caused) cost growth have not qualified as Nunn-McCurdy breaches. Fact-of-life unit cost growth is more problematic, and could indicate serious issues within the program. A conference with the USD (ATL) staff is necessary to reconcile whether Nunn-McCurdy unit cost (NMUC) breach reporting is appropriate.

(2) *Original APB.* The 2006 National Defense Authorization Act added another statutory unit cost metric that measures MDAP UC growth against the program’s initial APB. PAUC or APUC growth of 30 percent against the initial APB represents significant lifecycle cost growth (measured in Base Year dollars). UC growth of 50 percent against the initial APB is considered critical lifecycle cost growth. There is no option for a programmatic exclusion of externally-caused lifecycle cost growth as in growth against the current APB. There is also no APB reset. If the program experiences significant (30 percent) cost growth against the initial APB, then Secretary of the Army notification to Congress is required. The APB is not affected, and UC growth continues to be measured until it reaches critical (50 percent) cost growth level. At 50 percent UC growth, DAE certification to Congress is required as below.

d. *The NMUC breach process includes three steps:*

- (1) Notification to Congress within 45 days of breach notification.
- (2) Submission of a quarterly SAR to Congress within 45 days of the end of the quarter in which the notification is submitted.
- (3) If the breach exceeds critical thresholds, submission of a certification packet to Congress within 60 days after SAR submission.

e. If either measure of the program’s unit cost exceeds the significant cost growth threshold, the AAE must notify the Secretary of the Army, who in turn notifies Congress of the unit cost breach in writing within 45 days of the breach notification to the Army. The notification goes to the President of the Senate, Speaker of the House of Representatives,

and Chairman and Ranking Member of the House and Senate Armed Services Committees, Appropriations Committees, and Appropriations Defense Committees (14 total). The program's DASC, in coordination with the PM office and PVAR (SAAL-SSI), writes and staffs the letters for AAE coordination and Secretary of the Army signature. The appropriate Program Officer in the Army Office of Congressional Liaison (OCLL) delivers the letters to Congress. The USD (AT&L) staff should be informed that the notification process is underway. If the unit cost increase is 25 percent or more, the same notification process occurs. In addition, the DAE must certify to Congress in writing that:

- (1) The program is essential to national security.
- (2) No viable alternatives exist that provide equal or greater capability for less cost.
- (3) The new unit cost estimates for PAUC and APUC appear reasonable.
- (4) The program management structure is adequate to manage/control unit costs.

*f.* If the SAR or the certification are not submitted to Congress by the due dates, funding obligations are prohibited for any applicable appropriations and/or contracts for the program. Obligations may resume only after Congress has been in continuous session for 30 days after DAE submits the certification. If the UC breach results from program termination/cancellation, the DAE certification is not required, but a termination SAR is required to notify Congress of the action.

*g.* When a program exceeds 15 percent (current APB) or 30 percent (original APB), and Congressional notification occurs, Congress does not have to be notified again until cost growth exceeds the critical threshold. Once a program reaches 50% unit cost growth, to preclude reporting continuous Nunn-McCurdy critical unit cost breaches, the program's lifecycle unit cost growth is measured only back to the current APB for all future reports.

*h.* An ADM will be issued by the DAE following program certification that directs rebaseline and any additional steps required for the program going forward. This applies whether the ACAT level is ID or IC.

## **Section VI**

### **Unsolicited Proposals**

#### **10-19. Unsolicited proposals introduction and purpose**

This section provides standard guidelines for Army activities to follow in tracking, reviewing and evaluating unsolicited proposals (UPs) as required by the FAR. This guide is a companion to FAR Subpart 15.6 and should be used in conjunction with it.

*a.* The UPs are independently submitted by industry, academia, or private citizens without Government input or encouragement. The Army accepts valid UPs for evaluation and consideration per guidance in FAR 15.6. Prior contact with Army personnel by a prospective submitter is permissible if it is to receive administrative procedural guidance on submission of a UP. At no time will the submitter seek input or advice from Army subject matter experts in relation to the applicability of their proposal to Army needs or requirements; existing or future. Army personnel will conduct such contacts in a professional manner and make no commitments regarding the availability of funds and the future acceptance of UPs. Caution must be exercised to avoid the unauthorized release of acquisition information, consistent with DOD 5500.7-R and FAR 3.104.

*b.* Prior to the Army's acceptance of any article of equipment, material, or disclosure of information for evaluation or testing, the individual, firm, or corporation submitting such article, invention, or disclosure must understand and agree to policy contained in FAR Subpart 15.6. UP submitters must understand and agree to this policy and execute a MOU provided by the UP coordinator.

#### **10-20. Unsolicited proposals procedures**

*a. General.*

(1) The ASA (ALT) DASA for Procurement (DASA (P)) (SAAL-ZP) has Army staff responsibility for the Army UP program.

(2) The Commanding General, AMC has management responsibility for the Army UP program. This responsibility may be delegated to the AMC DCS, G-3 and managed by the AMC Office of Industrial Operations (AMCOPS-IEB). Management of the UP program includes:

- (a) Appointment of an Army UP manager.
- (b) Appointment of a UP coordinator for processing UPs submitted directly to HQ AMC.

(3) Heads of materiel developing agencies have the responsibility for issuing standing operating procedures to implement the guidance contained in this pamphlet. Each agency's UP program should be structured to meet their specific requirements.

(4) The Commanding General, TRADOC should designate a point of contact who interfaces with AMC and other materiel developers to coordinate the evaluation of UPs within TRADOC.

(5) Commanders of ACOMs not covered above should establish UP programs and appoint UP points of contact to serve as liaison between the Army UP manager and UP coordinators in subordinate commands and to provide guidance/information to the subordinate UP coordinators.

(6) Installation/activity commanders are responsible for:

(a) Establishing procedures for coordinating the processing of UPs within their commands. This process includes the receipt, review, evaluation, and disposition of the UPs.

(b) Appointing UP coordinators at separate locations/installations under their command to ensure that UPs are processed expeditiously and in accordance with the guidelines contained in this pamphlet.

(7) The UP coordinators are responsible for coordinating the receipt, review, evaluation, and disposition of UPs and other unsolicited submissions and ensuring adherence to procedures outlined in figure 10–1. To assist in monitoring the status of UPs, the UP coordinator should keep a detailed record of activities associated with the UP (in other words, name, address, title and phone number of POC for the UP; information on the evaluator; and all dates of action on the UP).

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1. Upon receipt of an unsolicited submission, first determine if it constitutes a valid unsolicited proposal (UP) according to the Federal Acquisition Regulation (FAR) (as opposed to advertising material, technical correspondence, or a commercial product offer). If the submission does not constitute a UP, return it to the sender; otherwise, determine if the UP relates to your activity's mission. If it does not, forward it to the appropriate Army activity or return it to the sender, whichever is appropriate. If the UP relates to the local mission, but there is a current or pending procurement, or the proposal is for something that must be procured competitively and there is no potential for being able to justify a sole-source procurement, then return the UP to the sender.

2. When you return a submission that represents a feasible approach to an existing Army requirement, consider enclosing a copy of your recent Broad Agency Announcement (BAA), and suggest that the submitter might consider resubmitting the proposal under the BAA. If the UP does not seem to represent a current procurement, this represents a determination that the submission constitutes a valid UP to be evaluated by your activity.

3. When sending the UP and evaluation guidance to the evaluator, set an initial 30-day suspense and monitor the evaluation. If it appears that the evaluation will extend beyond 90 days, apprise the submitter of the delay and the reasons. Alternatively, if the evaluator is keeping in contact with the submitter, you only need to place memoranda for record in the case file. If the evaluator states intent to fund, inform the submitter of the Army's preliminary intent to fund. A completed evaluation form is not required; however, you must keep the case open and maintain contact with the evaluator (at about 60-day intervals) until the contract is awarded and you receive the front page from the contract. The purpose of this is to eliminate the possibility of submitters not being informed if the UP is subsequently not funded.

4. If the UP is not funded, provide copies of the evaluation, relevant portions of the UP, and the draft rejection letter (prepared by the evaluator) to two knowledgeable, experienced members of your activity not involved with the original evaluation. This may be accomplished by convening a meeting of the Unsolicited Proposal Evaluation Review Committee (UPERC) (which is preferred) or by providing copies of the package to the UPERC individually in order to obtain their concurrence/ questions. Obtain additional information if necessary, final UPERC concurrence, and mail the submitter the final rejection letter.

5. If the UP has been recommended for funding by the evaluator(s), provide copies of the UP and the evaluation(s) to the UPERC for a final review prior to awarding a contract.

**Figure 10–1. Detailed guide for the UP coordinator**

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*b. Processing–receipt.*

(1) Army personnel who receive unsolicited submissions will refer them to the local UP coordinator. The UP coordinator determines if the submission is a UP as defined in this pamphlet.

(2) The UP coordinator sends an acknowledgment letter to the UP submitter not later than 10 working days after receipt. If the submission is not an UP, the UP coordinator simply returns it to the submitter with an explanation.

(3) In the case of UPs that relate to the mission of another Army activity, the receiving UP coordinator transfers such UPs to the coordinator at the cognizant activity, if known, and informs the submitter.

(4) When a UP coordinator returns a UP that does not relate to the mission of the Army, the coordinator, if possible, notes in the return letter where the submitter might resubmit the UP.

*c. Processing–review.* The UP coordinator performs an initial review to determine if the submittal qualifies as a valid UP as defined in FAR Subpart 15.603 and 15.606–1. If the UP submittal qualifies, it should be sent to the appropriate activity within the organization for evaluation by technically qualified personnel who are authorized to determine if the organization can fund the UP (see fig 10–2 for a detailed guide for the UP evaluator).



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1. As a potential Unsolicited Proposal (UP) Evaluator, the UP process for you should begin with your meeting with a company interested in submitting a UP. This is encouraged by the Federal Acquisition Regulation (FAR) and by Army policy. When meeting with a company, review its capabilities and describe the Army problems and deficiencies that might be targets of opportunity. Take care to avoid discussing procurement information or information that is not generally available to all potential contractors. "Available" can mean prior presentation at an Advance Planning Briefing for Industry (APBI), or accessible through the Defense Technical Information Center (DTIC), or at a Technical and Industrial Liaison Office (TILO). Be sure to give the company the name of your UP coordinator and explain that the UP should go to the coordinator and not to you. If your activity has an open Broad Agency Announcement (BAA) that relates to the potential UP, provide the visitor a copy and explain that the proposal should be submitted in response to the BAA rather than as a UP. The proposal is competitive if related to a BAA and a sole-source justification is not required.
  2. When the company submits a UP directly to you, forward it to your activity's UP coordinator. The UP coordinator will acknowledge the proposal, confirm that the proposal constitutes a valid UP as defined in FAR 15.601 and 15.603, and return it to you (if appropriate) along with an evaluation package, instructions, and an evaluation form. You will also receive UPs from the coordinator when such UPs are submitted directly to the UP coordinator.
  3. Your first responsibility in evaluating a UP is to confirm that there is not a pending solicitation for the product or service offered or if it is not available from another source. Note that Army policy requires that we provide the submitter a final or interim reply within 90 days. Accordingly, you will have 30 days to complete the evaluation. If it appears that there will be delays, inform the coordinator who will apprise the submitter of the delay. In addition, if you are communicating with the submitter (which is legal) tell the coordinator; often this can satisfy the requirement to keep the submitter informed but must be documented in the files.
  4. If you do not intend to fund the UP, complete an evaluation form and prepare a draft letter of rejection. If, on the other hand, you intend to fund the UP, inform the coordinator, who will apprise the submitter of the Army's preliminary intent to fund. Later, when the contract is awarded, send the coordinator a copy of the front page of the contract.
  5. In order to be able to award a contract based upon a UP, a sole-source justification must be prepared. In the case of an unsolicited research proposal, you must demonstrate that the effort is unique and innovative. This may most easily be accomplished by performing a search of the Tech-Report and Work-Unit Information Summary databases at DTIC and documenting the results of the search to the satisfaction of the contracting officer. For other than unsolicited research proposals, you must demonstrate the unique capabilities of the offeror.
  6. After deciding to fund a UP, and informing the coordinator who then informs the submitter, it can happen that a contract is not awarded. Reasons might include lack of funds, changes in requirements or priorities, or lack of success in justifying a sole-source award. If the UP cannot be funded, immediately inform the coordinator, complete an evaluation form, and prepare the rejection letter. Additional information on sole-source awards may be obtained from the local Competition Advocate.

**Figure 10–2. Detailed guide for the UP evaluator**

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- (1) If the submittal does not qualify as a UP (FAR Subpart 15.603 and 15.606–1), the UP coordinator notifies the submitter in writing (see fig 10–3 for a detailed guide for the UP coordinator).
- (2) Limited use of data (FAR Subpart 15.609(a)) as follows:
  - (a) Unless the information is available to the Army from another source without restrictions, Army personnel handling UPs will not use any data, idea, or any other part of a UP as the basis, or part of the basis, for a solicitation or in negotiations

with another firm unless the UP submitter agrees to the idea in writing. Army personnel will take extreme care when meeting with a particular firm to say nothing that might allow that firm to infer anything that a competitor may have submitted as part of a UP.

(b) A UP may include data that the submitter does not want disclosed for any purpose other than evaluation. Army personnel will not disclose outside the Government, information in any UP that is marked proprietary. All data rights issues should be coordinated with the Patent Counsel. If the submitter wishes to restrict the proposal, the title page must be marked with the legend contained in FAR 15.609(a).

(c) The UP coordinator immediately returns a UP that is marked with a legend different from that provided in FAR 15.609(a) along with a letter which provides appropriate information as highlighted in figure 10-3. The return letter states that the proposal cannot be considered because it is impractical for the Government to comply with the legend (and point out why this is so), but that the proposal will be considered if it is resubmitted with a satisfactory legend.

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The following information in this figure can be extracted and provided, in letter form, by designated unsolicited proposal (UP) coordinators, to organizations or individuals that request guidance regarding the preparation and submission of unsolicited proposals.

#### Body of Letter

1. The information provided in this letter is to aid those organizations or individuals that may not have access to the Federal Acquisition Regulation (FAR) in the preparation and submission of unsolicited proposals to the United States Army. This letter provides guidance that conforms to the FAR, Subpart 15.6, Unsolicited Proposals.
2. If you have a competitively available product that you want the Army to consider for purchase, do not submit it as an unsolicited proposal. Contact the Small and Disadvantaged Business Utilization Offices supporting the activities that purchase the item similar to those you are proposing to sell. Those offices will advise you on the purchasing requirements of their activities, explain what information is available, and how the activity uses e-commerce.
3. You must understand the following definitions to judge whether you have a valid unsolicited proposal.
  - a. **Unsolicited Proposal:** A written proposal for a unique or innovative idea that is submitted to an agency on the initiative of the offeror for the purpose of obtaining a contract with the Government, and that is not in response to a request for proposals, Broad Agency Announcement, Small Business Innovation Research topic, Small Business Technology Transfer Research topic, Program Research and Development Announcement, or any other Government-initiated solicitation or program.
  - b. **Advertising Material:** Material designed to acquaint the Government with a prospective contractor's present products, services, or potential capabilities, or designed to stimulate the Government's interest in buying such products or services.
  - c. **Commercial Item Offer:** An offer of a commercial item that the vendor wishes to see introduced in the Government's supply system as an alternate or replacement for an existing supply item. This term does not include innovative or unique configurations or uses of commercial items that are being offered for further development and that may be submitted as an unsolicited proposal.
  - d. **Contribution:** A concept, suggestion, or idea presented to the Government for its use with no indication that the source intends to devote any further effort to it on the Government's behalf.
  - e. **Technical Correspondence:** Written request for information regarding Government interest in research areas, submission of research descriptions, pre-proposal explorations, and other written technical inquiries.
4. (Name of UP Coordinator), as the unsolicited proposal coordinator for (Name of Organization), will guide you through the unsolicited proposal submission process or refer you to the appropriate organization for evaluation of your proposal. We encourage potential offerors to make preliminary contacts, through the UP coordinator, with appropriate field personnel before preparing a detailed unsolicited proposal or submitting proprietary data. Such contacts can answer questions as to the general need for the type of effort contemplated. Neither you nor the Army should consider such contacts as negotiations in contemplation of any contractual end work for the Army. Because the Army is composed of organizations with varied functional areas of responsibility, preliminary contact will allow ultimate referral to the appropriate organization, saving considerable time and effort.
5. There is no particular format to be followed in preparation of unsolicited proposals. The proposal should contain the following information to permit consideration in an objective and timely manner:

**Figure 10–3. Guidance to preparers of UPs**

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- a. Basic information. Offerors name, address, and type of organization; e.g., profit, nonprofit, educational, small business, minority business, women-owned business.
  - b. Names and telephone numbers of technical and business personnel to be contacted for evaluation or negotiation purposes.
  - c. Names of other Federal, State, or local agencies or other parties, if any, receiving the proposal or funding the proposed effort.
  - d. Date of submission and signature of a person authorized to represent and contractually obligate the offeror.
  - e. Technical Information. A concise, descriptive title and an abstract (200-300 words) stating the basic purpose, summary or work, and expected end result of the proposed effort.
  - f. A reasonably complete narrative in which the relevance of the proposed work to the Army's mission is discussed. State the problems to be addressed, the specific objectives of the research, and the expected consequences of successful completion of the research including potential economic and other benefits.
  - g. A full and complete description of the work to be performed, the method of approach, and the extent of effort to be employed. Provide an estimated period of time in which to accomplish the objectives and criteria by which success of the project can be evaluated.
  - h. Names and biographical information on the key personnel who would be involved, including alternates, in the project.
  - i. Any support needed from the Army; e.g. facilities, equipment, material.
  - j. Supporting Information. Provide a breakdown of the proposed cost or price in sufficient detail for meaningful evaluation. Show the estimated cost of materials and how you established it. Show the estimated costs of labor by category (engineering, manufacturing, test, etc.) and show the salary rates for each category. Show the indirect expense rates (manufacturing and engineering overheads, general and administrative expenses) to be applied. Explain the basis for the labor and indirect expense rates included in your cost breakdown (e.g., current experienced rates, projected from current experience, budgetary, etc.). Identify and explain the basis for any other cost elements included in your proposal.
  - k. A statement as to the proposed duration of the effort, the type of contract preferred, and the length of time for which the proposal is valid.
  - l. A brief description of any previous or ongoing research and development (R&D) work performed in the field or in related fields. Describe briefly the facilities and any special equipment available to perform the proposed effort.
  - m. Names and telephone number of agency technical or other agency points of contact already contacted regarding the proposal.

6. Unsolicited proposals may include proprietary data that you do not want disclosed to the public or used by the Government for any purpose other than proposal evaluation. DOD cannot assume responsibility for use of such data unless it is specifically and clearly marked with the following legend on the title page:

"Use and Disclosure of Data (FAR Subpart 15.609(a))

This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed — in whole or in part — for any purpose other than to evaluate the

**Figure 10–3. Guidance to preparers of UPs—continued**

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proposal. However, if a contract is awarded to this offeror as a result of — or in connection with — the submission of these data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in the data if it is obtained from another source without restriction. The data subject to this restriction are contained in Sheets [insert numbers or other identification of sheets].”

a. You must also mark each restricted sheet with the following legend:

“Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.”

b. We will return any unsolicited proposal received with a legend other than that stated above.

7. You will submit your prepared proposal to the unsolicited proposal coordinator for the Army organization determined to be responsible for the item or service you have to offer. Do not submit your proposal to any Government technical personnel with whom you have preliminary discussions, unless that person is a designated coordinator.

8. Your unsolicited proposal will be acknowledged within 10 business days of receipt by the unsolicited proposal coordinator. The coordinator will provide you with an interim or final answer on your proposal within 90 business days.

9. After the content of the proposal is approved, the coordinator will have appropriate personnel engaged in the technical areas of effort similar to the unsolicited proposal conduct an evaluation. If the evaluator requests further information, submission will be at your expense and risk and shall create no obligation on the Government. The following are some factors considered by Army technical personnel in evaluating unsolicited proposals (FAR Subpart 15.606-2):

a. Unique, innovative and meritorious methods, approaches, or concepts demonstrated by the proposal.

b. Overall scientific, technical, or socio-economic merits of the proposal.

c. Potential contribution of the effort to the agency's specific mission.

d. Your capabilities, related experience, facilities, techniques, or unique combinations of these that are integral factors for achieving the proposed objectives.

e. The qualifications, capabilities, and experience of your proposed principal investigator, team leader, or key personnel who are critical in achieving the proposed objectives.

f. Realism of the proposed cost and availability of funds.

10. You must be aware that a favorable, comprehensive evaluation of an unsolicited proposal does not, in itself, justify awarding a contract without providing for full and open competition. For example, we must reject your unsolicited proposal if it (FAR Subpart 15.607):

a. Is available to the Government without restriction from another source.

b. Closely resembles a pending competitive acquisition requirement.

c. Does not relate to the activity's mission.

d. Does not demonstrate an innovative and unique method.

**Figure 10–3. Guidance to preparers of UPs—continued**

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11. If we reject your proposal, you of course, will be informed as to the reason for rejection. We retain a copy of all rejected unsolicited proposals for up to six years to avoid any future misunderstanding regarding what was submitted.

12. We may only consider funding unsolicited proposals that offer significant advancement in the state-of-the-art or innovation. Unsolicited proposals that are recommended by our technical offices may never be funded due to higher priority requirements.

13. Please note those only duly constituted contracting officers have authority to contractually bind the Government. All other personnel who receive, handle, or evaluate unsolicited proposals are not authorized to commit the Government.

**Figure 10–3. Guidance to preparers of UPs—continued**

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(d) The UP coordinator should attach a locally reproduced cover sheet with the legend contained in FAR 15.609(d) for those UPs being tasked to in-house evaluators, UPs being forwarded elsewhere in the Government, and UPs without restrictive legends that are from educational or non-profit organizations (also see FAR 15.609(f)) when the UP is being evaluated by organizations outside the Government. UPs from other organizations may be evaluated outside the Government only if the UP coordinator obtains a written agreement that the data in the proposal may be released to others outside the Government for the purpose of evaluation. The UP coordinator also obtains a written agreement from any non-Government evaluator stating that data in the proposal will not be disclosed to others outside the Government.

*d. Processing–evaluation (FAR Subpart 15.606–2).*

(1) The UP coordinator coordinates the evaluations.

(2) Army personnel with responsibility for the Army task most closely related to the UP perform the evaluation. Whenever possible, there will be at least two independent technical evaluations of each UP.

(3) The evaluator should develop an evaluation form using the criteria in FAR Subpart 15.606–2. Also include in the evaluation form any action being taken regarding funding, and/or rejection of the UP. If the proposal is not funded, the evaluator should be requested to attach a draft reply or rejection letter. In addition, the evaluation form should include the name, title, phone number, and signature of evaluator and the approver.

(4) UP evaluators are responsible for obtaining supporting evaluations of UPs from other DOD activities when necessary and apprise the UP coordinators of such actions. They may also communicate with the submitters in order to obtain clarifications of proposal contents and to inform the submitter of modifications that can make proposals fit Army needs. In conducting such discussions, evaluators should take care to avoid giving submitters unreleasable information that would provide an unfair advantage over potential or actual competitors. (See fig 10–4.)

*e. Processing–disposition.*

(1) The UP coordinator ensures that the evaluation is completed and the result submitted in writing to the submitter not later than 90 business days after receipt of the proposal and executed MOU. If the 90-day suspense cannot be satisfied, the UP coordinator sends an interim reply to the submitter detailing the reason(s) for the delay and providing an estimated completion date.

(2) The UP coordinator ensures that the unsolicited proposal evaluation review committee (UPERC) reviews all UPs. The UPERC ensures that appropriate attention is given to adequately evaluating and processing unsolicited proposals.

(3) After review and/or evaluation, the UP coordinator informs the submitter by letter of the results of the evaluation. The UP coordinator may select from among the following categories of responses.

(a) Acknowledge receipt of the UP, request an executed MOU when necessary and a second copy of the UP when appropriate. It is appropriate to request a second copy when the original cannot be conveniently copied.

(b) Not meeting the FAR criteria for an UP. Provide a letter that contains guidance to preparers of unsolicited proposals as provided in figure 10–5. If the proposal is being rejected because sole-source basis does not exist, indicate that if a RFP is issued, the submitter may respond with a competitive proposal.

(c) Not related to local mission, forwarding UP elsewhere in the Army if appropriate Army agency is known.

(d) Not related to Army mission. Suggest non-Army activities, if known.

(e) Second request for executed MOU.

(f) Rejected for technical reason (including duplication of existing research); include the reasons. Do not list the name of the evaluator of the UP.

(g) Rejected because of funding limitations and program priorities. (Use for relevant, technically acceptable proposal only.)

(h) Interim reply; holding for further evaluation. (Include target date.)

(i) Interim reply; intend to fund. Indicate that the submitter should take no action until contacted by contracting officer and contract awarded. Also indicate that final determination is subject to the provisions of the Competition in Contracting Act (CICA).

(j) Interim reply; holding for funding. (Repeat every 6 months until funded or rejected. Consider rejection after 18 months if not funded.) The UP coordinator should inform the submitter that the Army's intent to fund does not guarantee the proposal's ultimate funding. Non-award can result from lack of funds or (in the case of a non-research UP) a subsequent competitive solicitation.

(4) Sole-source justification as follows:

(a) The CICA and the FAR differentiate between UPs in general, and unsolicited research proposals in particular. Specifically, FAR 6.302-1 states that, "Supplies or services may be considered to be available from only one source if the source has submitted an unsolicited research proposal that (A) Demonstrates a unique and innovative concept, or, demonstrates a unique capability of the source to provide the particular research services proposed; (B) Offers a concept or services not otherwise available to the Government; and, (C) Does not resemble the substance of a pending competitive acquisition."

(b) Subjects that do not fall into the sub-category of unsolicited research proposals include studies, analyses, or consulting services. Guidance for other than full and open competition may be found in DFARS 206.302-1.

(c) Unique and innovative concept may be demonstrated by performing a search of the Tech-Report and the Work-Unit Information Summary databases at the Defense Technical Information Center (DTIC) and documenting the search in the sole-source justification. Guidance should be obtained from the local Competition Advocate.

(d) Many unsolicited research proposals do not require synopsis, before award, based upon exception (8), FAR 5. 202: "The proposed contract action results from the acceptance of an unsolicited research proposal that demonstrates a unique and innovative concept ... and publication of any notice ... would improperly disclose the originality of thought or innovativeness of the proposed research, or would disclose proprietary information associated with the proposal."

(5) The UPs should not be rejected solely because of non-availability of funds without considering reprogramming.

(6) Rejected UPs may be returned to the submitter if requested; however, the UP coordinator retains one copy of each UP to avoid any future misunderstanding as to what was submitted.

(7) Case files are not closed until the contract is signed or the UP is rejected; that is, until the rejection letter or front page from the signed contract can be enclosed.

(8) The UP coordinator provides for the review of recommendations to accept or reject UPs. Whenever possible, the review is conducted by at least two technically competent personnel not involved in the original evaluation (a UPERC). The UPERC can meet formally or the evaluation packages can be circulated among the members for review and comment.

(9) In all cases, the UPERC is responsible for confirming that the evaluation was accomplished in a thorough and professional manner and that subject matter expert(s) performed the evaluation(s).

(10) If the UP has not been recommended for funding, the UPERC confirms that—

(a) Reprogramming of funds was considered if the UP was judged relevant and technically acceptable.

(b) The response letter(s) accurately describe the reason(s) for rejection and make no unfounded promises.

(11) If the UP has been recommended for funding, the UPERC confirms that the UP evaluator has shown that there is adequate justification for recommending a sole-source contract. In the case of an unsolicited research proposal, such confirmation requires a search of the DTIC database.

## **Section VII**

### **Supply Maintenance Army–Operation Support Cost Reduction Management and Oversight Process**

#### **10–21. General supply maintenance Army–operation support cost reduction information**

a. The supply maintenance Army–operation support cost reduction (SMA–OSCR) program is designed to reduce operating and support costs for Army working capital fund (AWCF) funded repair parts.

b. The AWCF obligation authority finances the SMA–OSCR program. Funding is contained within the hardware Operating Cost Authority of the SMA activity group and is limited to SMA owned and stocked items.

c. The program includes all Army managed spares that are procured by either AWCF or Defense Working Capital Fund (DWCF). The program consists of individual, approved projects funded by SMA–OSCR to perform only nondevelopmental engineering design/redesign efforts that result in a physical hardware application for spares, using existing technology, that extends from the time projects are defined until the project is delivered (includes new set of drawings, specifications, documented maintenance procedures, redesigned repair kits–prototypes, not quantities for operational inventory, testing, and so forth).

d. Projects may be single year or multiyear efforts that are incrementally funded rather than funded in accordance with the full funding concept. Thus each succeeding increment of a project is re-approval annually once the project is initiated. This allows project termination after a small investment if the risk of success becomes questionable.

e. Projects generally must be funded from a single source (SMA–OSCR). In the case where multiple funding sources are proposed, projects must provide detailed information to permit an appropriate, informed funding determination. Efforts may be organic or contractual and each project must produce savings that exceed the investment cost.

f. All SMA–OSCR initiatives require PM approval prior to any funds being expended.

g. The AMC MSC commanders are authorized to approve initiatives up to \$1 million per initiative in writing. The Commander, AMC approves in writing any initiatives greater than \$1 million.

h. All SMA–OSCR requirements are identified and included in HQDA budget submissions and also made an item of special interest during on-site secondary item reviews with AMC.

i. Excluded from SMA–OSCR program inclusion are: developmental efforts properly funded in RDTE; exploratory/feasibility/proof-of-principle studies; implementation (manufacturing equipment, redesign kit purchase, and so forth) or operational (feasibility assessments, contract solicitation and award, managing and tracking projects and post investment analysis, and so forth) costs; or other costs including test or support equipment that is not used in accomplishing the engineering design/redesign effort.

## **10–22. Qualifying criteria for supply maintenance Army–operation support cost reduction**

a. Projects must involve Army managed repair parts acquired through and stocked by the SMA–AWCF only. Under certain limited circumstances, considered on a case-by-case expectation basis, secondary items managed by DLA and procured through the DWCF may qualify if the following conditions are present:

- (1) The AMC maintains responsibility for configuration management.
- (2) Savings from the redesign effort accrued to the Army exceed cost.

b. The AWCF SMA authority will only be used to fund engineering design/redesign of repair parts for the specific purpose of reducing secondary item acquisition costs; extending the life of the item; and/or improving the reliability, maintainability and supportability (for example, change maintenance procedures to permit the repair or rebuilding of an item rather than replacement, extend life of the item, or reduce repair costs).

c. Proposed projects must involve the application of existing technology and must have or result in a physical hardware application or SMA process improvement providing cost saving or avoidance related to specific SMA-managed secondary items to qualify for funding.

d. Savings accruing to the Army from proposed projects must exceed the amount invested. A project's comparative cost savings or avoidance as measured against the amount invested is one of the principle determinants in project approval. At a minimum, a benefit-to-investment ratio (BIR) and savings-to-investment ratio (SIR) of 1.0 or greater is required for an initiative to indicate that the present value of the benefits is equal to or greater than the present value of the investment with in a minimum payback period of 7 years.

e. The BIR is defined as the relationship between benefits and the investment costs necessary to produce those benefits. The BIR is determined by dividing the present value of the dollar quantifiable benefits (that is, savings, cost avoidances, and productivity improvements) by the present value of the investment cost of the alternative.

f. The SIR is defined as the relationship between savings and the investment costs necessary to effect those savings. This implies that if a proposed investment is not adopted, there will be expenditures associated with the status quo alternative required in the future. However, if the preferred alternative is implemented, those future expenditures will be reduced or perhaps even totally eliminated. This technique can be applied when feasible alternatives are to be compared to the status quo. The SIR takes on added importance in the comparative analysis process when meeting a given requirement (objective) at the present time, but a potentially better way to meet the requirement is under consideration. The SIR only reflects costs and savings, the other benefits of the alternatives are not considered in any way. Calculate the SIR by dividing the present value of savings by the present value of the investment cost of the alternative.

g. A project DOES NOT qualify for SMA–OSCR consideration if its purpose is—

- (1) To fund developmental (R&D) projects, materials, or technologies.



(2) To fund studies other than engineering design or redesign (for example, exploratory studies to ascertain if a proposal would qualify as a SMA–OSCR project or proof of principle inquiries, standardization studies, study continuations, feasibility studies, and so forth).

(3) To fund an initiative whose primary purpose is to change (enhance or improve) the performance envelope.

(4) The purchase of test equipment or office automation hardware and software, implementation of managerial type improvements, physical reconfiguration of production/maintenance facilities, and other such initiatives that do not physically impact the secondary items are not eligible for funding under this program.

### **10–23. Supply maintenance Army–operation support cost reduction funds**

*a.* The SMA–OSCR funds may be used—

(1) To fund all efforts directly related to the redesign effort itself, from the time the project is defined (scope of work) until delivery of the required product (new set of engineering drawings, specifications, documented maintenance procedures, redesign repair kits, and so forth).

(2) To fund prototype fabrication and testing (but only if done before finalization of engineering and technical package and if a requirement of engineering redesign scope of work).

*b.* The SMA–OSCR funds may not be used—

(1) To fund implementation costs (for example, acquisition of manufacturing equipment and machinery to fabricate the redesigned part; acquisition of part or kit; qualification assurance and acceptance testing; editing, publication, printing, distribution of technical or maintenance manuals; or any other inventory related costs). The acquirer funds implementation costs.

(2) To fund operational costs (for example, cost incurred assessing the feasibility of an initiative, documenting the study requirements, preparing and awarding a contract, managing and tracking the initiatives, and performing an assessments of the finished product). Post investment analyses are also not to be funded from SMA–OSCR.

### **10–24. Supply maintenance Army–operation support cost reduction procedure to develop an initiative**

*a.* Identify an item for OSCR.

*b.* Perform a preliminary proposal addressing at the minimum—

(1) Problem definition.

(2) Proposed solution.

(3) Hypothesizes of benefit (man-hours saved, cost avoidance, and so forth).

*c.* Obtain PM authorization.

*d.* Perform an economic analysis.

*e.* Submit initiative for approval. MSC commanders are authorized to approve initiatives up to \$1 million per initiative.

The Commander, AMC approves initiatives greater than \$1 million. Written approval is required.

*f.* Obtain funds from the resource manager.

*g.* Implement and track the initiative.

*h.* Perform economic analysis evaluation.

### **10–25. Supply maintenance Army–operation support cost reduction reporting**

*a.* As required by HQDA, HQ, AMC reports the results of the OSCR program as a command periodically to DCS, G–4, Director of Sustainment (DALO–SMM). The report is distributed to other DCS, G–4 staffs (DALO–SMP and DALO–DP) and to the ASA (FM&C) (SAFM–BUR–S).

*b.* The annual report contains, at the minimum, the following elements of information:

(1) Initiative title.

(2) Executing command.

(3) Brief description of initiative.

(4) Funds required for redesign/reengineering effort (current year dollars in thousands).

(5) Results of redesign/reengineering effort (current year dollars in thousands).

(6) Investment costs (current year dollars in thousands).

(7) Projected O&S savings (current year dollars in thousands).

(8) SIR.

(9) BIR.

*c.* Existing AMC MSC reports that meet the above information elements may be submitted to meet the reporting requirement.

**10–26. Major subordinate command supply maintenance Army–operation support cost reduction requirements**

- a. The AMC major subordinate command (MSCs) conduct quarterly reviews of the status of key projects, consider new initiatives, and evaluate investment strategies. The AMC MSC ensures that—
  - (1) There is no miscalculation of benefits.
  - (2) Annual benefit goals are met.
  - (3) Required economic analyses are done in a timely manner.
  - (4) A detailed analysis of all projects is completed.
- b. The AMC MSC initiatives focus on reduce life cycle costs, increase productivity, and increase reliability.
- c. The AMC MSCs terminate an SMA–OSCR project in cases where estimated benefits are not being realized.
- d. The AMC MSC tracks the status of project baselines and forecast potential benefits. The AMC MSCs ensures that the initiatives are financially sound by monitoring cost and schedule execution during the investment cycle while evaluating technical risks, technology surveillance, and other technical aspects during the investment cycle.

**10–27. Supply maintenance Army–operation support cost reduction management control questions**

- a. Are SMA–OSCR funds used only to reduce operating and support costs for the repair parts?
- b. Has the PM authorized the initiative in writing?
- c. Has the authorizing commander signed the initiative authorization letter?
- d. Has an economic analysis been performed in accordance with the DASA (C&E) Economic Analysis Manual (<http://www.asafm.army.mil/ceac/ce/ce.asp>)?
- e. Has the AMC MSC implemented a tracking system and economic analysis reevaluation for the initiative to validate projected initiative benefits?

**Section VIII**

**Guide for the Preparation of Army Acquisition Programs for Review by the Army Systems Acquisition Review Council**

**10–28. Guidance for systems coordinators**

This section provides general guidance to the Department of the Army system coordinators (DASCs) and PMs involved in the preparation of Army programs for the ASARC, DAB, and ITAB. It provides an overview of the review process and serves as a reference for the conduct of a decision review. In addition, the section includes a discussion of the IPT and the Army OIPT processes. It also provides guidelines for the preparation of supporting documentation and a suggested timeline for the events and activities leading up to the decision review itself. The section concludes with suggestions for the conduct of successful milestone decision reviews.

**10–29. Background of the Army Systems Acquisition Review Council, Defense Acquisition Board, and Information Technology Acquisition Board review process**

- a. The ASARC is the Army-level review body for acquisition of all ACAT I/IA programs as well as other select programs where the AAE is the MDA. The ASARC provides a structured forum where issues requiring top-level consideration are presented to senior Army leadership. DODD 5000.01, DODI 5000.02, and AR 70–1 govern the Army’s milestone review process. The DAB and ITAB are OSD-level forums operating in much the same manner as the ASARC. The DAB/ITAB and the ASARC differ in the level of their respective memberships and the ACAT level of the programs they review (see table 10–1).
- b. The ASARC, DAB, and ITAB are advisory bodies. The council/board recommendations are conveyed to the respective MDA for final decision. In the majority of cases, the respective MDA is present during the council/board reviews, which precludes additional reviews. The ASA (ALT) chairs the ASARC. The DAB and ITAB are chaired by the USD (AT&L).

**Table 10–1**  
**Acquisition category descriptions**

Program Category	Program Management	Primary Criteria (\$M–FY00 Constant) <sup>1</sup>	Milestone Review Forum	Milestone Decision Authority
<b>ACAT I (C/D)</b>				
ACAT ID	PEO/PM	More than \$365M RDTE	DAB	USD (AT&L)

**Table 10–1  
Acquisition category descriptions—Continued**

		More than \$2.190B Procurement		
ACAT IC	PEO/PM	More than \$365M RDTE More than \$2.190B Procurement	ASARC	AAE
<b>ACAT IA (M/C)</b>				
ACAT IAM	PEO/PM	Excess of \$32M Single Year Excess of \$126M Total Program Excess of \$378M Total Life cycle Costs	ITAB	DAE
ACAT IAC	PEO/PM	Excess of \$32M Single Year Excess of \$126M Total Program Excess of \$378M Total Life cycle Costs	ASARC	AAE
<b>ACAT II</b>				
ACAT II	PEO/PM	More Than \$140M RDTE More Than \$660M Procurement	ASARC	AAE <sup>2</sup>
<b>ACAT III</b>				
ACAT III	PM	High visibility, special interest (includes AIS)	ASARC	AAE <sup>2</sup>

Notes:

<sup>1</sup> The dollar values used to determine ACAT status are based in statute and represent estimates of expected total program expenditure (in other words, the sum of expected expenditures across the POM and Extended Planning Period for all defined previous, current, and future increments).

<sup>2</sup> The AAE, on a program-by-program basis, may delegate the MDA to the PEO level in which case an ASARC is not required. PEOs conduct In Progress Reviews (IPRs) for program reviews.

### 10–30. Army Systems Acquisition Review Council organization and membership

*a.* The ASARC provides senior acquisition managers and functional principals the opportunity to review designated programs at formal milestones to determine a program or system’s readiness to enter the next acquisition phase. For DAB (ACAT ID) or ITAB (ACAT IAM) programs, the ASARC determines the program’s readiness for the DAB/ITAB. In addition to program milestone reviews, the ASARC may convene at any time to conduct a formal review of the status of a program.

*b.* The ASARC membership consists of the senior acquisition managers and functional principals shown in table 10–2. Additional attendees can be added as necessary, based on the system under review. The MDA is supported in the decision making process by IPTs comprised of representatives of each of the Army staff elements; acquisition support activities such as AMSAA and DASA (CE); and the appropriate PEO and PMOs. These IPTs provide DA/OSD oversight and review while embodying the themes of teamwork, tailoring, and empowerment.

**Table 10–2  
ASARC membership**

Assistant Secretary of the Army (Acquisition, Logistics and Technology) Chairman
Vice Chief of Staff of the Army
Deputy Under Secretary of the Army—Test and Evaluation Executive
Assistant Secretary of the Army (Financial Management and Comptroller)
Assistant Secretary of the Army (Installations and Environment)
Assistant Secretary of the Army (Manpower and Reserve Affairs)
CG, U.S. Army Materiel Command
CG, U.S. Army Training and Doctrine Command
Office of the General Counsel
DCS, G–1
DCS, G–2
DCS, G–3/5/7

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**Table 10–2**  
**ASARC membership—Continued**

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DCS, G–4

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CIO/G–6

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DCS, G–8

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Director, Office of Small Business Programs

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Additional Attendees as Required

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### **10–31. Integrated product team structure**

*a. Integrated product and process development.* The Army has incorporated the principles of IPPD (see para 6–2) into the ASARC process. At the core of the integrated product and process development (IPPD) methodology are the IPTs. The Secretary of Defense has directed that the Department perform as many acquisition functions as possible, including oversight and review, using IPTs. These IPTs function in a spirit of teamwork with participants empowered and authorized, to the maximum extent possible, to make commitments for the organization or the functional area they represent. The IPTs themselves are composed of representatives from all appropriate functional disciplines and the PMO, working together to build successful programs. They enable decision-makers to make the right decisions at the right time. IPTs operate under the broad principles shown in figure 10–6. There are three IPT elements or levels supporting the PM throughout the ASARC process: the Army OIPT, ASARC IPTs, and WIPTs.

*Note.* For ACAT ID and IAM programs the ASARC IPT is frequently replaced by meeting with joint participation from OSD.

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#### **INTEGRATED PRODUCT TEAM OPERATING PRINCIPLES**

- Open Discussion With No Secrets
- Qualified, Empowered Team Members
- Consistent, Success-Oriented, Pro-Active Participation
- Continuous Communications Up and Down the Chain
- Reasoned Disagreement
- Issues Raised and Resolved Early

**Figure 10–4. IPT operating principles**

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*b. Army overarching integrated process/product team.* The Army overarching integrated process/product team (OIPT) conducts full program reviews prior to ASARCs with a primary focus on resolving programmatic issues that cannot be resolved at lower levels. Table 10–3 provides the Army OIPT membership. The Deputy for Acquisition and Systems Management chairs the Army OIPTs for ACAT ID, IC, and II systems. The CIO/G–6 Principal Director for Governance, Acquisition, and Chief Knowledge Office chairs the Army OIPTs for ACAT IAM and IAC systems. The Deputy Assistant Secretary of the Army for Integrated Logistics Support chairs Army OIPTs in support of sustainment readiness reviews (SRRs). Sufficient resolution of programmatic issues may lead the Army OIPT to recommend to the AAE that a “paper ASARC” occur (in other words, the decision memorandum is issued without a meeting of the ASARC being convened). The Army OIPT may determine IPTs and/or WIPTs should continue to work issue resolution before proceeding to an ASARC meeting. When the Army OIPT determines unresolved issues require higher-level review, the ASARC convenes. Under this structure, the ASARC focuses on the issues presented by the Army OIPT Chair rather than conducting full program reviews.

**Table 10-3  
Army OIPT membership—Continued**

ASA (ALT) Deputy for Acquisition and Systems Management (DASA (ASM)) Chairman <sup>1</sup>
CIO/G-6 Principal Director for Governance, Acquisition, and Chief Knowledge Office <sup>1</sup>
ASA (ALT) Deputy for Acquisition Policy and Logistics (DASA APL) <sup>2</sup>
CG, Army Test and Evaluation Command
ASA (FM&C) Director for Army Budget ASA (FM&C) Deputy for Cost and Economics
Office of the Army Test and Evaluation Executive (DUSA-TE) Office of the ASA (I&E)
Office of the ASA (M&RA)
U.S. Army Materiel Command
U.S. Army Training and Doctrine Command
Office of the General Counsel
DCS, G-1 HSI Directorate
Office of the DCS, G-2
DCS, G-3/5/7 Capability Integration, Prioritization, and Analysis Directorate (DAMO-CI)
Office of the DCS, G-4
DCS, G-8 Force Development
DCS, G-8 Program Evaluation and Analysis
ASA (ALT) Deputy for Plans, Programs and Resources (DASA PP&R)
ASA (ALT) Deputy for Research and Technology (DASA R&T)
ASA (ALT) Deputy for Procurement (DASA P)
ASA (ALT) Deputy for Exports and Cooperation (DASA DEC)
Commander, U.S. Army Combat Readiness Center (USACRC)
Director, Office of Small Business Programs
Additional Participants As Required

Notes:

<sup>1</sup> CIO/G-6 Principal Director for Governance, Acquisition, and Chief Knowledge Office chairs Army OIPT for IAM and IAC Systems.

<sup>2</sup> DASA APL chairs Army OIPT for SRR

*c. ASARC IPTs.*

(1) The ASARC IPTs, established to support each program, perform the day-to-day work required to support the program throughout the acquisition review process; primarily those activities leading to a successful milestone decision. ASARC IPT membership typically consists of action office-level representatives from across the Army. Table 10-4 depicts typical ASARC IPT membership with respective interest areas. One of the most critical tasks facing the DASC is establishing and managing the ASARC IPT in support of the milestone review. The ASARC IPT is further organized into WIPTs oriented toward one or more of the various acquisition functional areas. Figure 10-7 shows the review and Army IPT/OIPT oversight structure for programs subject to ASARCs, DABs, and ITABs.

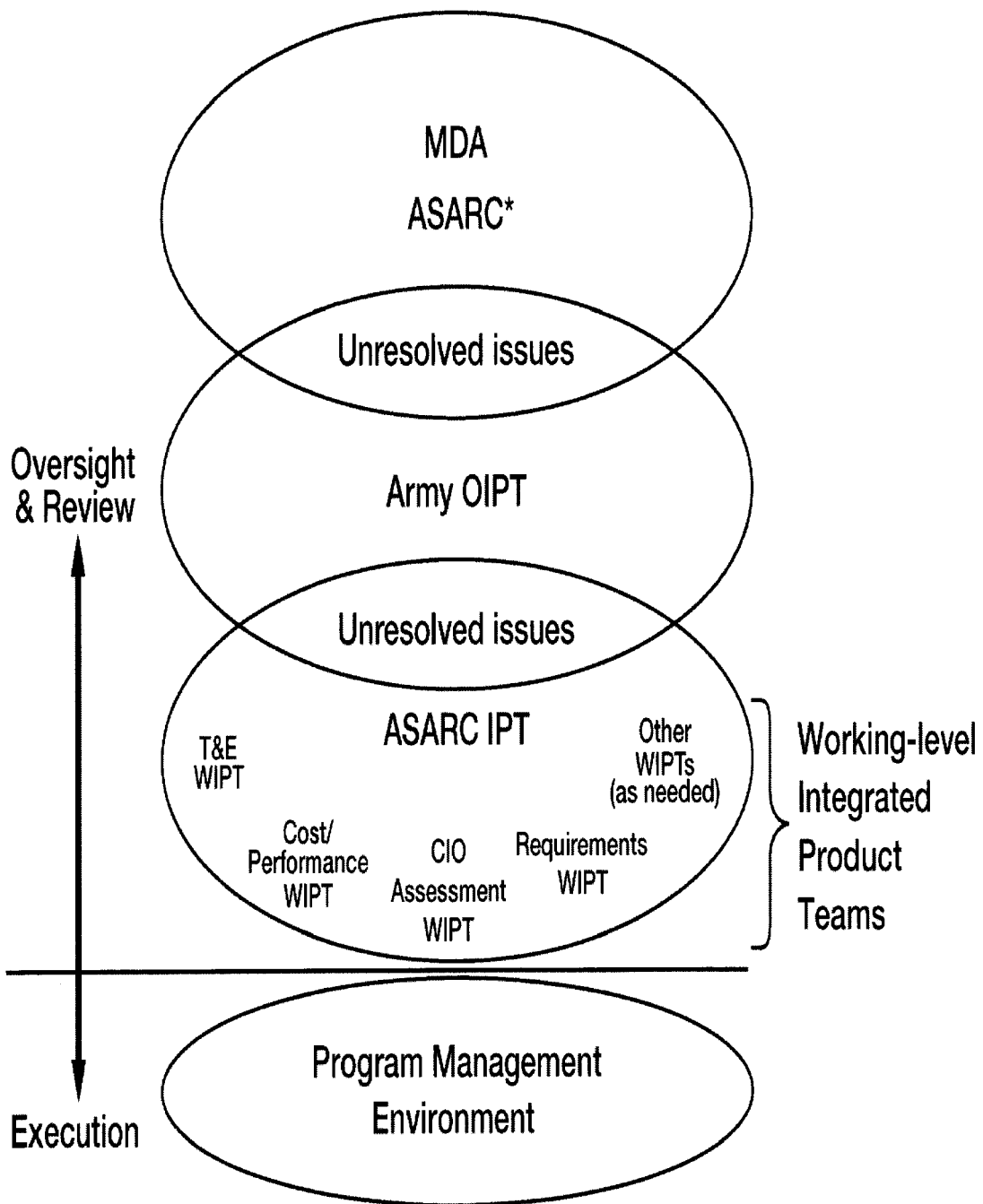
**Table 10-4  
ASARC IPT membership interest areas**

Agency	Interest Area
AMSAA	System Analysis and Logistics
ARL/SLAD	Survivability/Lethality, Soldier Survivability, Information Operations
Agency	Interest Area
ASA (FM&C)	Funding, Approves ACP

**Table 10–4  
ASARC IPT membership interest areas—Continued**

<b>Agency</b>	<b>Interest Area</b>
ASA (I&E)	Installations, Environmental
ASA (M&RA)	HSI, MER
ASARC Executive Secretary	Acquisition Strategy, ADM, ASARC Scheduling
Congressional Legislative Liaison	Congressional Status and Issues
ASA (ALT) DAS ASM	Program Assessment, DASC Coordination, Army OIPT
DASA (CE)	AoA, POE, ACP, CCA, Economic Analysis, PBL BCA
DASA (DE&C)	International/Cooperative Interest
DASA (APL)	Supportability, Supportability Strategy, Type Classification, Materiel Release, PBL BCA, Acquisition Strategy, Policy Compliance
DASA (P)	Acquisition Strategy, Policy Compliance
DASA (PP&R)	Funding, Risk Management, CAIV, APB, Probability of Success
CIO/G–6	CIO Assessment, CCA, Information Assurance, Information Support Plan, System Architecture, IT Portfolio Management
DCS, G–1	HSI, MER
DCS, G–2	STAR, Threat Coordination
DCS, G–3/5/7	AoA, Requirements, COIC, BOIP, Training, MER
DCS, G–4	Supportability Strategy, Logistics, Supportability, Type Classification, Materiel Release
DCS, G–8	Program Assessment, Funding, Supportability
DCS, G–8, PAED	CCA, Affordability Assessment
TEMA	TEMP, SEP, EDPs, SAs, SERs, AoA
General Counsel	Acquisition Strategy, APB, Legal Review, ADM Review
HQ AMC	Supportability Strategy, Logistics, Supportability, Materiel Release, PBL BCA
Inspector General	Oversight
OTSG/AEHA/USACHPPM	Health
PEO	Program Termination Criteria
PM	Full Program Review
TRADOC HQ (ARCIC)	Requirements Documents, Operational Architecture, COIC, MER, AoA
TRADOC School/Center	Operational Architecture, Capabilities Documents, STRAP, BOIP
TCM	Requirements, Operational Architecture
USACRC	Safety
USATEC	TEMP, SER, Safety

(2) The ASARC IPT is the level at which the majority of the interaction between the PMO and the DA Staff occurs. The PM leads the ASARC IPT and, at the invitation of the PM, the DASC may serve as co-chair. In addition to key PM/PEO personnel, the ASARC IPT includes representation from each of the ASARC/Army OIPT membership staff offices and many supporting activities such as AMSAA, ARL, the Survivability and Lethality Analysis Directorate (SLAD), and so on, that are involved in the execution analysis and evaluation of the program. ASARC IPT areas of support may include the development of program plans or strategies, assisting with identifying and resolving program issues, recommended changes to the program, and waivers to documentation requirements.



\*The ASARC will only meet for a program if issues remain unresolved from the Army OIPT review.

Figure 10-5. Army IPT structure for ASARC milestone reviews

(3) Prior to the first meeting of the ASARC IPT, the PM prepares ASARC IPT operating guidelines that are included with the ASARC IPT announcement letter (see para 10–41h(1)). Figure 10–6 provides sample guidelines and the ASARC Secretary has ASARC IPT announcement letter examples on file. The PM, assisted by the DASC, should tailor these guidelines to fit the specific requirements of their program. Keeping these principles in mind, the primary function of the ASARC IPT prior to the milestone is to assist the PM in preparing the program for the review. This support includes the review of program documentation, preparing assessments, and making recommendations on the readiness of the program to enter the next acquisition phase. The ASARC IPT members must be pro-active in the process and participate early in the milestone preparation activities. For instance, reviewing documentation while still in an early draft form enables early identification and resolution of issues by the PM and his staff. The ASARC IPT members must work closely with the PM, PMO, and among themselves to find acceptable solutions to problems as they are identified. Issues identified during the ASARC IPT review process, but not capable of resolution at that level, are immediately raised to the appropriate decision authority as reflected in figure 10–6. Issues having broad implications and/or not resolved by the IPT are brought before the Army OIPT. The PM has the option of coordinating a solution directly with the principal staff members or actually requesting a meeting with the MDA if the complexity of the issue warrants.

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### **Sample ASARC IPT Operating Guidelines**

1. The ASARC IPT must focus on providing the MDA information to answer these questions:
  - a. Is the system still needed?
  - b. Does the system work?
  - c. Is the system supportable throughout the life cycle?
  - d. Is the system safe?
  - e. Are major risks identified and manageable?
  - f. Is the program affordable (fully funded at MS B; optimally funded at MS C)?
  - g. Has the system been subjected to CAIV analysis?
  - h. Has the system met all statutory requirements for the milestone decision?
2. Any issues that may prevent a positive answer to these questions must be resolved at the PMO/ASARC IPT level or elevated to the appropriate decision authority.
3. The ASARC IPT should identify issues early and resolve them as soon as possible.
4. The ASARC IPT publishes a Modified Integrated Program Summary (MIPS) with enclosed memorandums from the DCS G-2; DCS G-3/5/7; Director, Program Analysis and Evaluation (PA&E); ATEC; the CIO/G-6; plus an ASARC IPT memorandum identifying any issues and/or risks which must be provided to the Army OIPT and/or MDA in order to make the required milestone decision.
5. The MIPS is prepared with ASARC IPT support and input, but the PM maintains control of all portions of the MIPS except the required DA Staff memorandums.
6. The PM or his representative leads the ASARC IPT that in turn provides assistance to the PM. The authority to change the program and delay the review process remains with the PEO/PM and the MDA.
7. The ASARC IPT must maintain an integrated system perspective and avoid any tendency toward parochialism.
8. Absence from ASARC IPT meetings is permitted when the member has no issues to raise in his/her functional area.
9. Information exchange and data transmittal will replace as much report/documentation generation as possible. Substance and usability should replace format.

**Figure 10–6. Sample ASARC IPT operating guidelines**

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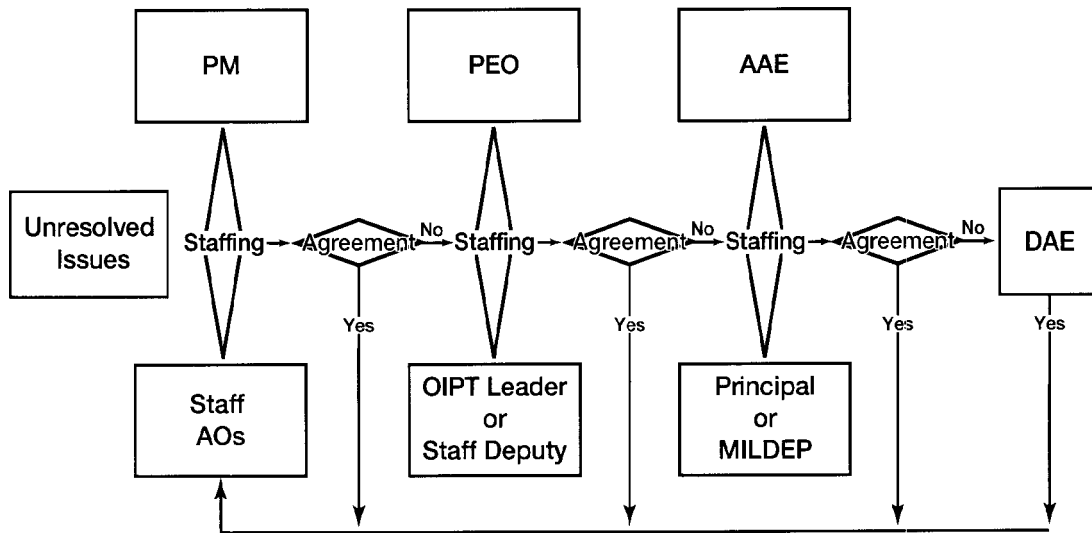


Figure 10–7. Issue resolution process

d. Working-level IPT.

(1) The ASARC IPT is further organized into WIPTs that are oriented toward one or more of the various acquisition functional areas. The PM, in coordination with the ASARC IPT members, proposes the WIPT structure that is best suited to support his specific program. Most ASARC IPT members participate on one or more of the functional teams. The PM should also assign a member of his office to each team. This PMO representative is usually the team leader or co-leader.

(2) Note that these WIPTs are not established just to manage or support the milestone process within the Pentagon prior to the ASARC or DAB/ITAB Review. WIPTs are normally engaged up front and continuously during the acquisition process to assist in the development of acquisition plans and strategies, test/performance evaluation strategies, logistics/fielding strategies, and so on that will increase the program’s probability of success. These teams help the PM avoid programmatic pitfalls while enhancing support from senior Army leadership. Table 10–5 depicts the special interest areas of the WIPT members. Table 10–5 also shows a typical WIPT makeup based on these special interest areas. The PM and ASARC IPT members should ensure that these functional teams do not become “stove piped” in nature. As an example, the test/performance team should also include representatives from the logistics, HSI, and the requirements teams. WIPT responsibilities correlate directly with the areas listed in table 10–5.

Table 10–5  
Typical ASARC WIPT structure

Members		Associate Members	
<b>Program Management</b>			
PEO/PM*/ASARC Coordinator		OSD Reps	
DASC (ASARC IPT Facilitator)		Support Contractor(s)	
ASA (ALT)	CIO/G–6		
DCS, G–8			
<b>Test/Performance Analysis</b>			
TEMA*	HSI Rep	AMSAA	OSD Reps
PM**	Logistics Rep	ASA (ALT)	DCS, G–2

**Table 10-5  
Typical ASARC WIPT structure—Continued**

<b>Members</b>		<b>Associate Members</b>	
USATEC	CIO/G-6	ARL/SLAD	
DCS, G-8			
<b>Supportability</b>			
ASA (ALT) ILS*	ASA (I&E)	AMSAA	TCM
PM**	AMC	MSDDC	CIO/G-6
DCS, G-4		USATEC	OSD Rep
<b>HSI</b>			
DCS G-1*	ASA (M&RA)	ARL/SLAD, HRED	USATEC
PM**	PM Logistics Rep	OSD Rep	USACHPPM
TCM/School	ASA (ALT) ILS	PERSCOM (DCS Plans)	USACRC
<b>Requirements</b>			
TRADOC*	JCS/JROC Rep	DCS, G-2	OSD Rep
TRADOC TCM	DCS, G-8 PA&E	CIO/G-6	DCS, G-3/5/7
PM**	DCS, G-8	FP	CAIG Rep
<b>Operational Effectiveness</b>			
DCS, G-3/5/7*(Chair)	PM**	DCS, G-8	OSD Rep
DCS, G-8 PA&E	CAIG	TCM/School	ASA (ALT)
ASA (FM&C)	CIO/G-6	TRAC	TEMA
			HQ AMC
<b>Cost/Funding</b>			
DASA (CE)* (Co-Chair)	PM* (Co-Chair)	DCS, G-8	OSD Rep
DCS, G-8 PA&E	CAIG	ABO	ASA (ALT))
HQ AMC	CIO/G-6	TRAC	DCS, G-3/5/7
DCS, G-4	ASA (I&E)		
<b>Risk Mitigation</b>			
PM*	AMSAA	ASA (ALT)	AMC
USACRC		ASA (I&E)	
<b>Contracting</b>			
Contracting Office*	Engineering Rep	Logistics Rep	Testing Rep
Legal	OSBP	PM**	
<b>Production Readiness</b>			
AMC HQ*	MSDDC	AMSAA	ACALA
PM**	DCS G-4		
<b>Advisory/Issue Dependent (Members)</b>			
OGC	SAAL-ZN	Surgeon General	OCLL
TAAG	MSDDC	SMDC	OCAR
IG	COE		
NGB			
<b>CIO Assessment</b>			

**Table 10–5  
Typical ASARC WIPT structure—Continued**

Members		Associate Members	
CIO/G–6*	Functional Proponent	TCM	OSD Rep
PM**	TRADOC		DCS, G–8
ASEO	AMC		
DASC			

\*WIPT leader (WIPTL)

\*\*PM may request to serve as WIPTL or co-WIPTL

(3) Once the WIPT structure has been determined, designate a WIPT leader (WIPTL) for each team. The WIPTL may be from the PMO or the DA staff. Some PMs may prefer PMO representatives as leaders of the WIPTs for management purposes. Others may find it useful to have the WIPT led by a member of the DA Staff to facilitate the resolution of issues within the Pentagon and reduce the need for PMO personnel presence away from the PMO. The WIPTL or co-leader for the cost/funding is the DASA (CE) representative.

(4) One of the primary responsibilities of each WIPT in preparation for the milestone is reviewing, staffing, and coordinating program documentation that falls within their respective functional area. As has been mentioned previously, it is important that this review begin early in the preparation process. Draft documentation should be reviewed and recommendations for changes and improvements provided as early as possible. Once the document is finalized, the WIPT member representing the proponent office takes the lead in the staffing and approval process.

(5) Issues identified during the review of documentation, or at any time, will be resolved to the maximum extent possible within the WIPT functional area. If the issue requires consideration by other functional teams, the WIPTL can facilitate the coordination of issues across functional lines. This ensures that all members impacted by the issue are informed and involved. Likewise, the PMO representative on each WIPT must keep the PM aware of the actions within each group, so that the PMO can help resolve programmatic issues. As necessary, the WIPTL briefs the status of ongoing actions to the complete ASARC IPT membership during each meeting. This keeps all members apprised of the issue(s) under consideration and affords them an opportunity to participate in the resolution process, when necessary.

### **10–32. Duties/functions of the Department of Army system coordinator**

The program’s Department of Army system coordinator (DASC) is the primary acquisition staff officer at HQDA. The DASC is responsible for the day-to-day support of his/her assigned program and serves as the PM’s primary POC within the Pentagon. The DASC is responsible for ensuring that all program review requirements are identified and communicated immediately to the PM. As the Army OIPT facilitator, the DASC assists the PM in the management of the Army OIPT process. Figure 10–8 depicts the respective areas of responsibility of the DASC and the PM in the review process. The need for a comprehensive teamwork arrangement between the PM and DASC is evident. The PM must manage the efforts of the PMO to provide quality and timely program documentation and information to the Army Staff and supporting activities; while the DASC must ensure that the Army staff action officers (SAOs) work effectively in supporting the PM’s efforts. The following paragraphs expand on the basic DASC responsibilities.

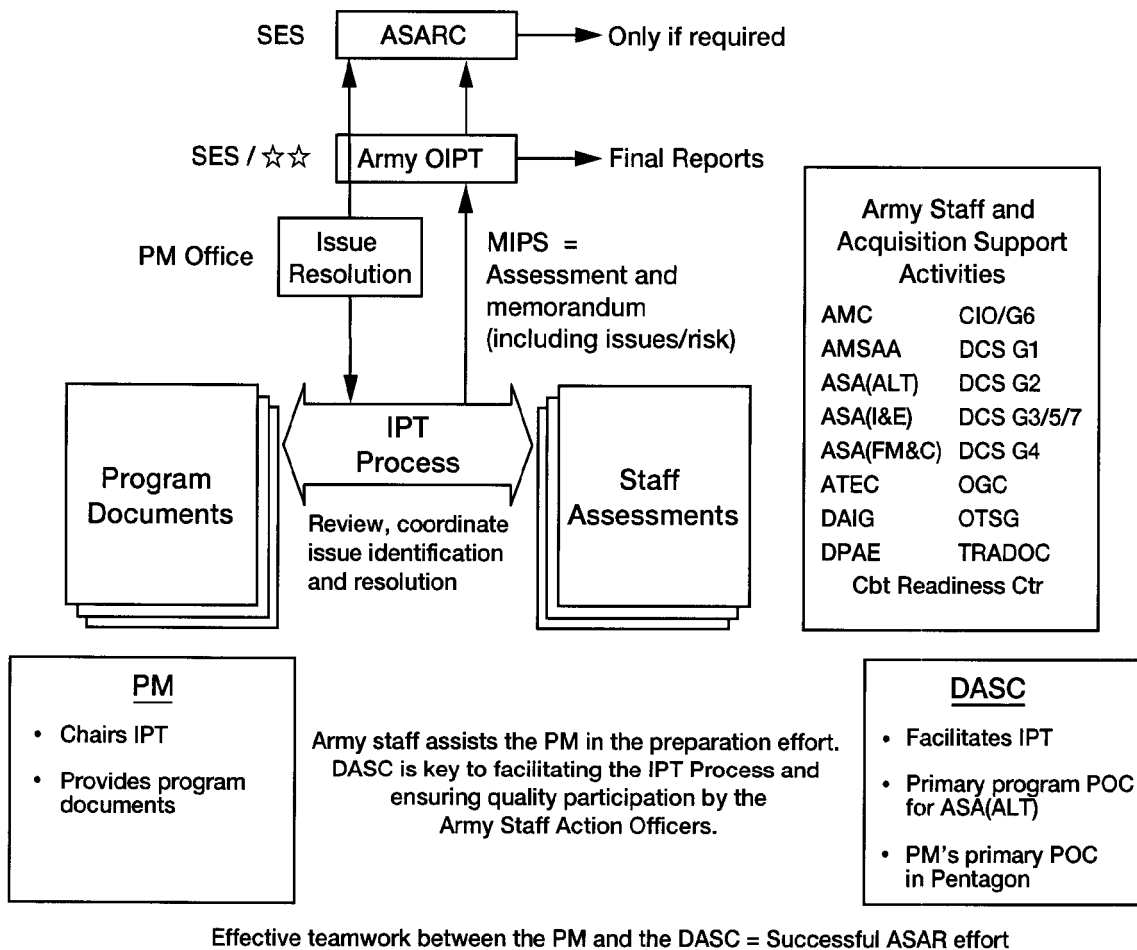


Figure 10–8. DASC/PM coordination role in the IPT process

a. Key activities and responsibilities of the Department of Army system coordinator.

(1) *Primary acquisition staff action officer.* The DASC is responsible for keeping the acquisition chain of command informed of the status of the program and the status of the review preparation activities. The DASC represents and supports the program in acquisition staff meetings and, when needed, provides staff papers, and so forth. The DASC is also responsible for notifying and coordinating the attendance of ASA (ALT) managers at reviews, meetings, or briefings.

(2) *Primary PM POC at the Pentagon.* The DASC works closely with the PM to represent the program within the acquisition chain and to other staff activities. He assists the PM in issue resolution at DA and OSD levels. The DASC is the “eyes and ears” of the PM at the Pentagon and must ensure that the PM is advised of any actions or circumstances that might negatively impact the program.

(3) *The ASARC IPT facilitator.* As the ASARC IPT facilitator, the DASC assists the PM in the day-to-day management of ASARC IPT activities. As the ASARC IPT facilitator, the DASC is responsible for ensuring that the ASARC IPT membership supports the PM in preparing the program for review. The DASC is responsible for recording issues identified by ASARC IPT members and assisting/tracking the resolution process. As the ASARC IPT facilitator, the DASC is the primary POC for keeping the PM advised of the review process status.

(4) *Preparation of ASARC IPT issues/risk memorandum.* The DASC has primary responsibility for the preparation of the ASARC IPT issues/risk memorandum and for ensuring the MIPS includes the validated threat (DCS, G-2), approved requirements (DCS, G-3/5/7), operational effectiveness/suitability (USATEC), affordability assessments (DCS, G-8 PA&E), and CIO assessment (CIO/G-6). The central management focus of the PM and the DASC is to manage the ASARC IPT to a zero issues/low risk final Army OIPT assessment. The DASC will brief the memorandum/findings at the Army OIPT meeting and make changes as directed. Paragraph 10-41 discusses these documents in detail.

(5) *Event/activity scheduling.* In coordination with the PM and the PMs ASARC Coordinator, the DASC assists in scheduling ASARC IPT meetings and other review events in the Pentagon. The DASC is responsible for conference room reservations and setup for meetings, and so on.

*b. Other key coordination roles.* The DASC also works closely with the PMs ASARC Coordinator, ASARC IPT Functional Area Leaders, and the ASARC Executive Secretary, as described below.

(1) The PM should designate a member of the PMO to serve as the ASARC Coordinator for the preparation activities and to maintain the status of these activities. The ASARC Coordinator should advise the PM on the general status of the effort and be able to prepare or provide program status charts, such as a current schedule, documentation status report, and so on. The ASARC Coordinator should maintain program schedule information, establish and maintain a program documentation library and an up-to-date documentation status log or register, establish and maintain a POC list, prepare ASARC IPT related correspondence, and act as the central POC at the PMO for all ASARC IPT members. The ASARC Coordinator is the PM's primary action officer (AO) for managing the preparation efforts and keeping the process on-track. The ASARC Coordinator works closely with the DASC/ASARC IPT facilitator to ensure that information between the PMO and the ASARC IPT flows effectively and that all meetings are well planned, executed, and recorded. The DASC maintains close coordination with the ASARC Coordinator in order to schedule events and pass information. The DASC coordinates with the PM on important matters and works routine matters with the ASARC Coordinator.

(2) The DASC and ASARC Executive Secretary coordinate the scheduling of the Army OIPT and ASARC reviews as well as the recommended attendance at the reviews. The DASC also maintains communications with the ASARC Executive Secretary in order to track changes in acquisition policy, procedures, and obtain lessons learned from recent program reviews.

(3) As the ASARC IPT facilitator, the DASC maintains close communications with the WIPT leaders to track review activities within each WIPT team. The facilitator must monitor the working issues of the WIPTs to ensure they are on a track for resolution. The facilitator must be ready to elevate issues that threaten to delay the ASARC process.

### **10-33. Cost review board role and responsibilities**

The Army Cost Review Board (CRB) is responsible for the recommended Army Cost Position (ACP), which is the system life cycle cost estimate briefed for all Army OIPT, ASARC, and CAIG reviews for all major and special interest programs. The ACP is also the basis for the development and justification of the program's associated budget. The ASA (FM&C) is the final approval authority for the ACP. The CRB is chaired by the Principal Deputy ASA (FM&C) with members from the senior leadership of ASA (ALT), Army Budget Office (ABO), DCS, G-3/5/7, DCS, G-4, DCS, G-8, PA&E, ASA (I&E), and the CIO/G-6. The Deputy for Cost Analysis to the ASA (FM&C) is the non-voting CRB secretary. The CRB Working Group (CRBWG) supports the CRB principals.

*a.* In the Cost WIPT, the CRBWG members are the principals' representatives working to develop the system's life cycle cost estimate. These team members are responsible to keep their principals informed of the progress of the estimate and to pre-brief their principals before the CRB meeting.

*b.* In circumstances where cost issues need further exploration or where the program has significant technical/cost/schedule risk, the CRB principals may require that additional analysis be completed before recommending the estimate for ASA (FM&C) approval. Additional analyses can range from a more extensive review of the cost drivers to alternative approaches to developing a CCA that is compared with the WIPTs estimate. The involvement of the CRBWG would be appropriate to the level of required analysis.

*c.* Under the Cost WIPT process, the CRB process is tailored to meet the objective of assuring the senior leadership that the best system cost estimate is provided to the Army decision-makers.

*d.* The PEO signed CARD is briefed to the CRB principals to receive agreement on all the programmatic considerations and program content prior to the development of the ACP. This ensures a common baseline for development and review of the PM prepared POE, the ODASA (CE) prepared independent cost estimate (ICE), and the preparation of the ACP.

*e.* The recommended ACP is briefed to the CRB principals and, when they concur, is provided to the ASA (FM&C) for approval. The recommended ACP then becomes the approved ACP and is briefed to the ASARC or DAB/ITAB, and CAIG as appropriate. Figure 10-9 illustrates the cost review and approval process.

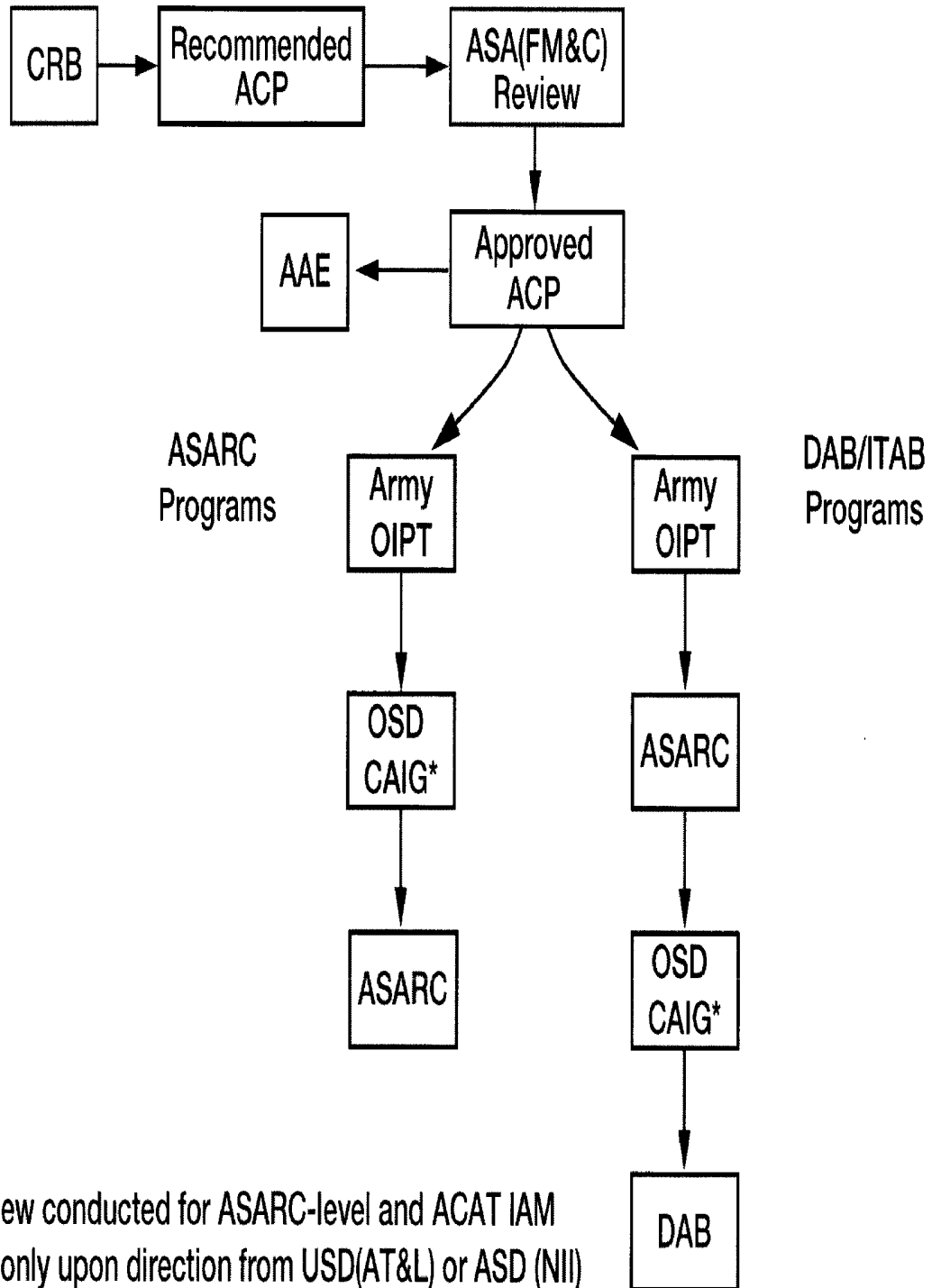
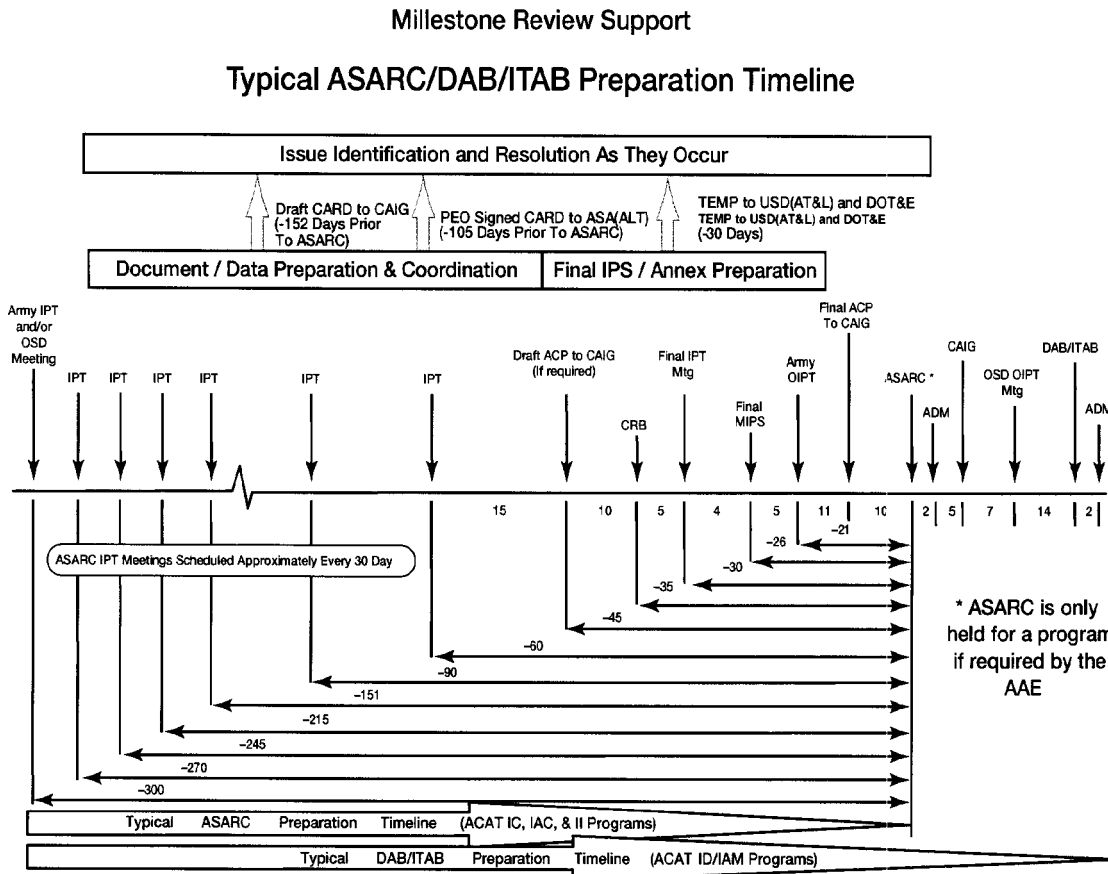


Figure 10-9. Cost review and approval process flow

**10-34. Schedule of events**

Manage preparations for an ASARC, DAB, and ITAB to a schedule established at the initial ASARC IPT leadership meeting. Depending on the ACAT level of the program, there are two basic planning sequences: one for ACAT ID/IAM and another for ACAT IC, IAC, and II programs. OSD manages ACAT ID/IAM program review schedules and, generally speaking, have more events and larger IPTs. Figure 10-10 depicts a typical ASARC/DAB preparation timeline for ACAT I, IA, and II programs.



**Figure 10-10. Typical ASARC/DAB/ITAB preparation timeline**

*a. ACAT IAC, IC, and II programs.* The first step in preparing the schedule for ACAT IAC, IC, and II programs is to set a target date for the ASARC. Once established, the remaining major preparation milestones are backward planned (in other words, the Army OIPT should be scheduled to occur approximately three weeks before the planned ASARC date, and so forth). ASARC IPT meetings should be proposed and scheduled on an as needed basis. Establish the first ASARC IPT approximately 12 months prior to a targeted MDR and six months prior to an IPR. Table 10-6 shows a sample major events schedule for ACAT IC and II programs. The goal is to ensure that adequate time is allowed to enable all required actions to be completed on schedule. The most critical item is providing the draft ACP data to the CAIG (if required). The ACP results from a CRB review and is the official cost document briefed to the CAIG for ACAT 1D systems (and IC upon request). Typically this is on the critical path.

**Table 10–6**  
**Sample major events schedule for ACAT IAC, IC and II systems—Continued**

Event	Schedule Remarks	Days Prior
ASARC IPT Meeting	As required	
Signed CARD to SAALT	PEO approved version	-105
CARD briefed to CRBWG	Scheduled by DASA (CE)	-91
CARD briefed to CRB	Scheduled by DASA (CE)	-80
Draft ACP data to CAIG (if required)	45 prior to ASARC	-45
CRB Meeting	Scheduled by DASA (CE)	-35
TEMP to USD (ATL) & DOT&E	Staffed by TEMA	-30
Army OIPT	3 weeks prior	-21
ASARC Review	Only scheduled if required	0
ADM	Issued by ASARC Secretariat	+2

*b. Typical schedule for ACAT ID/IAM programs.*

(1) The OSD and the OSD OIPT control ACAT ID/IAM preparation schedules. ACAT ID programs still require ASARC IPTs, which merge within the OSD review process. The ASARC IPTs role is very similar to the ACAT IAM, IC and II processes, only now they must work closely with the OSD staff and the PMO. The ASARC IPT may meet as a separate entity from the OSD review process in order to resolve an Army issue or it may meet with selected OSD personnel. The PM may use the ASARC IPT to the extent he finds beneficial, but in any case, the ASARC IPT members retain the responsibility of keeping their principals well informed on issues affecting their functional area and ensuring their agreement with program review decisions.

(2) One of the primary objectives of acquisition streamlining is to reduce the number of large meetings, including component reviews for ACAT ID programs. Once major events have been scheduled, target dates can be listed in a Calendar of Events and provided to the ASARC IPT membership as soon as possible. Table 10–7 depicts a sample major events schedule for an ACAT ID program.

**Table 10–7**  
**Sample major events schedule for ACAT ID systems**

Event	Schedule Remarks	Days Prior
ASARC IPT/OSD Meeting	As required	
CARD to the CAIG	Draft Version	-180
Signed CARD to SAALT	PEO approved version	-133
CARD briefed to CRBWG	Scheduled by DASA, CE	-119
CARD briefed to CRB	Scheduled by DASA, CE	-108
Draft LCCE/ACP data to CAIG	45 prior to ASARC	-73
CRB Meeting	Scheduled by DASA, CE	-59
Army OIPT	Three weeks prior to ASARC	-49
Final ACP to CAIG	At least 10 days prior to ASARC	-38
TEMP to USD (ATL) & DOT&E	Staffed by TEMA	-30
ASARC Review	Only scheduled if needed	-28
JCB Review	21–30 days prior	-21
CAIG Review		-21
JROC (Joint or multi-Service ACAT IC)	Prior to ASARC	-7
OSD OIPT		-14
DAB		0



**Table 10–7**  
**Sample major events schedule for ACAT ID systems—Continued**

Event	Schedule Remarks	Days Prior
ADM		+2

**10–35. Army Systems Acquisition Review Council documentation**

Documentation, whether prepared and provided by the PM and TRADOC or the assessments and reports prepared by acquisition support activities, is the primary source of information for acquisition decision makers and their staff at the DA and OSD level. Under the IPPD process, documentation is still very important, but the increased interaction between the PM and DA/OSD staffs and activities provides increased and diverse information/data exchange opportunities. It also lessens the need for much of the formal, detailed documents previously required. This paragraph discusses the major categories of review and oversight documentation and outlines DOD and Army initiatives to apply effective streamlining to the documentation process.

*Note.* These documentation requirements apply to milestone decision reviews. Special program reviews, in general, do not have regulatory or statutory requirements for documentation. One exception is a program review for a Nunn-McCurdy Breach; that requires certifying the program to Congress. The ASARC Executive Secretary can provide the PM with the correct format.

*a. Overview.* Figure 10–11 provides an overview of required documentation, along with suggestions where tailoring opportunities exist, and identifies those areas where tailoring is not necessary. For instance, statutory documentation or those documents requiring approval by the MDA are normally non-negotiable and must be prepared in a prescribed format. The PM can negotiate need and/or format for other review and oversight documentation with the Army OIPT or OSD OIPT. Examples of these are the program management documents used by the PM to manage his program. Approval occurs at the PM or PEO level, and is not subject to approval at the Army or OSD level. However, the document or information contained in the document may be provided to the IPT/Army OIPT members if that is the PM’s preferred method of coordinating program information/data.

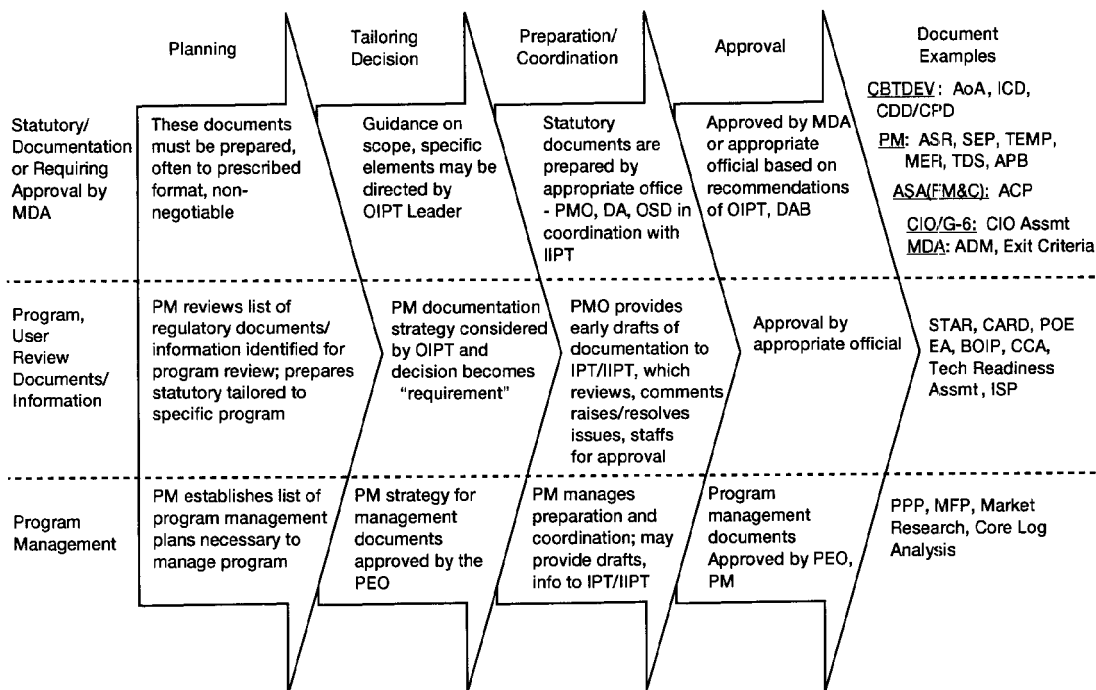


Figure 10–11. Acquisition milestone documentation process

*b. Documentation tailoring.* The MIPS (see para 10–41h(2), below) is the single document provided to all Army OIPT principals for milestone and program reviews. Functional elements are to review support and program specific documentation generated within their functional area to find efficiencies, and should limit oversight documentation to those needed to answer review and oversight questions. Therefore, one of the first activities of the ASARC IPT is to determine the requirement for program documents and information and recommend to the MDA what documentation should be prepared/tailored for the specific program. Each WIPT has the responsibility to review program documentation within their functional area and provide tailoring recommendations to the ASARC IPT. As an example, figure 10–12 depicts the relationship of various cost and risk documents falling into the three categories of supporting, oversight, and review documents. Similar relationships exist for T&E, logistics, HSI, and so on documents. Even though statutes or regulations may require a document, it may not be required by the ASARC IPT in general to perform its oversight function because another document may contain the same or better information. A major function of the ASARC IPT is to apply tailoring to the maximum extent possible without undue risk to the oversight/decision process. This tailoring of required oversight and review documentation to the needs of each specific program is a key element of the acquisition streamlining process. Continued emphasis will be placed on this effort to reduce the amount of documentation that must be prepared to support program reviews.

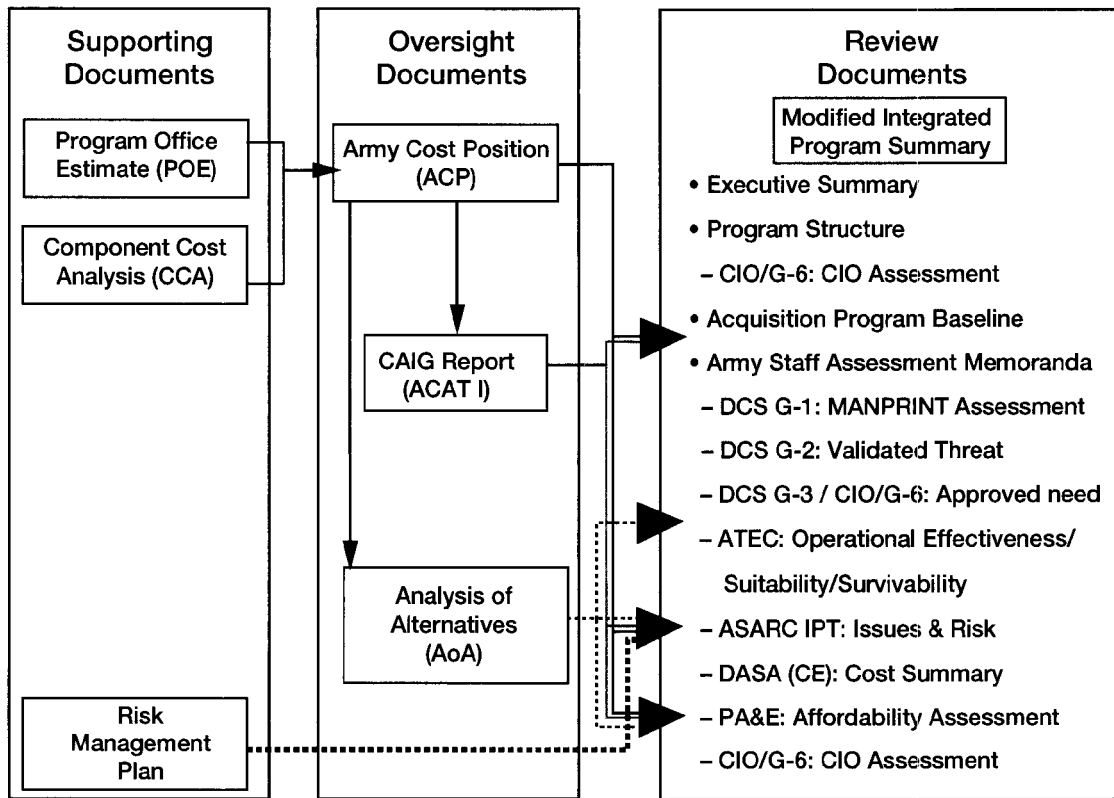


Figure 10–12. Typical categorical relationships of program documentation

c. *Oversight documents.* Oversight documents are those necessary to satisfy very explicit requirements in Army, OSD, or Congressional interest areas. Table 10–8 provides examples of normally required oversight documents. These are key documents that should be provided or made available to all members of the ASARC IPT. They are the best sources for the information needed for program assessments and recommendations.

Table 10–8  
Examples of required oversight documents (not all inclusive)

Document	Remarks
Acquisition Program Baseline (APB)	Statutory; Critical document at all Milestones
Acquisition Decision Memorandum (ADM)	Must address APB status if not yet approved
Army Cost Position (ACP)	CRB results briefed to CAIG
Acquisition Strategy Report (ASR)	Includes some statutory requirements
Test & Evaluation Master Plan (TEMP)	Includes Critical Operation Issues and Criteria (COICs)
Analysis of Alternatives (AoA)	Includes training analyses
Capabilities Development Document/Capabilities Production Document (CDD/CPD)	
Initial Capabilities Document (ICD)	

**Table 10–8**  
**Examples of required oversight documents (not all inclusive)—Continued**

Document	Remarks
Integrated Logistics Support Assessment (ILSA)	
System Evaluation Report (SER)	Statutory (MS B, C, and FRP)
Live Fire Test & Evaluation Strategy Report	
HSI Assessment	Statutory (or Waiver)
Production Readiness Review (PRR) Report	
Risk Management Plan/Risk Assessment	
CIO Assessment	Statutory; Prepared by the PM and approved the Army CIO
Independent Safety Assessment (ISA)	Regulatory; Prepared by USACRC

*d. Supporting documents.*

(1) Supporting documents are those used by ASARC IPT members to prepare/generate oversight and review documents. They are normally required for use by a WIPT and not the ASARC IPT in general. The document or specific information content should be made generally available to any member or WIPT to assist in the resolution of an identified issue.

(2) All migration plans that identify program cost, schedule, performance, and supportability impacts will comply with the DISR and are submitted to the DCS, G–8 (FD). A DCS, G–8 (FD) review determines architectural compliance, evaluates conformance to interoperability objectives, and use of proper engineering principles in determining schedule and performance impacts. Table 10–9 provides examples of supporting documents.

**Table 10–9**  
**Examples of supporting documents (not all inclusive)**

Document	Remarks
Program Office Estimate (POE)	Costing by Program Office
Component Cost Analysis (CCA)	Independent DASA (CE) cost estimate
Cost Analysis Requirements Document (CARD)	System description to support cost estimates
Basis of Issue Plan/Feeder Data (BOIP/FD)	Army Management document
RAM Rationale Report	
Health & Safety Data Sheets	
Human Factors Engineering Assessment (HFEA)	Feeds HSI Assessment
Test Threat Support Package	Part of TEMP Process
Transportability Engineering Analysis/Approval	
Environmental Assessment/Impact Statement	
System Training Plan	User training management plan
Insensitive Munitions/Unplanned Stimuli Strategy & Assessment	Supports CDD/CPD, Technical Assessment, Risk Assessments, SER
Safety Release	
Safety Assessment Report	Feeds HSI Assessment, Safety Release
Human Systems Integration Plan	Supports Risk Management
Health Hazard Assessment Report	Feeds HSI Assessment
Manpower, Personnel & Training Assessment	Feeds HSI Assessment
Soldier Survivability Assessment	Feeds HSI Assessment

**Table 10–9**  
**Examples of supporting documents (not all inclusive)—Continued**

Document	Remarks
System Engineering Plan (SEP)	New OSD requirement
Work Breakdown Structure (WBS)	Basic for cost estimates/contracts
Materiel Fielding Plan	
Communications Plan	
AIS Security Plan	
DISR Migration Plans	Must be coordinated with the DCS, G–8
Programmatic Environment, Safety, and Occupational Health Evaluation (PESHE)	
Other Plans: independent evaluation plans (IEPs), CMP, Supportability Strategy, HSI management plan, Source Selection Evaluation Plan (SSEP), and so on	

*e. Congressional/DAB/OSD IT OIPT oversight documents.* Congressional/DAB/ITAB oversight documents are those required by statute or DOD regulation. Unless the law has specific provisions, statutory documents cannot be waived by any DOD entity; however, those required by DOD regulation may be waived. Table 10–10 provides examples of Congressional/DAB Oversight Documents. Requirement for these documents does not necessarily extend to all ACAT I and II programs. As an example, the CAIG report applies only to ACAT I programs and the DAB “Decision Document” applies only to ACAT ID programs.

**Table 10–10**  
**Examples of congressional/DAB oversight documents (statutory, regulatory)**

Document	Remarks
CAIG Report (ICE)	–ACAT ID systems only
Economic Analysis	–ACAT IAM systems only
Acquisition Plan	
Beyond LRIP Report	–DOTE document for Full-Rate Production Decision
Business Clearance	–OSD document
Contractor Cost Data Reporting	–OSD support document
Manpower Estimate	–Statutory
Cooperative R&D Projects Report	–Prepared by OSD for ACAT ID
JROC Assessment	–DAB
Acquisition Program Baseline	
Exit Criteria	–Will be attached to the ADM
OIPT Leader Report	–Presented at DAB (with Decision Document, replaces DAB Blue Book)
Environmental Assessment/Impact Statement	–Statutory
CIO Assessment	–Statutory; Prepared by the PM, approved and forwarded to OSD by the Army CIO
Summary OT&E Report	–OSD

*f. Program specific documents.* Documents in this category are those that apply only to specific programs. As examples, the Security Classification Guide applies only to programs that have classified components, and the Software Development Plan applies only to those programs that have software components. Table 10–11 lists examples of program specific documents. The responsibility of the ASARC IPT for this category is to ensure that, if required, they are satisfactorily accomplished. However, no formal staffing at DA or OSD is necessary for these documents.

**Table 10–11**  
**Examples of program specific documents (not required by every program)**

Document	Remarks
Comparative Sources Analysis	–Contract
Program Protection Plan	–PM management document
Security Classification Guide	–PM management document
Program Assurance Plan	–PM management document
Software Development Plan	–PM management document
Simulation Support Plan	–PM management document

*g. Other documents.* Some documents, heretofore treated as standalone documents, are now included in other documents. Table 10–12 lists these documents.

**Table 10–12**  
**Examples of program documents included in other documents**

COIC is included in TEMP
Affordability Assessment is included in MIPS
Environmental Assessment is included in MIPS
Integrated Program Assessment is included in MIP
S Cooperative Opportunities is included in MIPS

*h. Key documents.* Of the many documents involved in the review and oversight process, there are a number that are key to the PM’s management of the ASARC and the preparation process. The first is the ASARC Announcement Letter that needs to be timely and effective in order to get the ASARC IPT organized and operational at the outset. The MIPS is the most critical, because it is the comprehensive statement of the program status that the Army OIPT uses to make their review recommendation. It is the ultimate product of the ASARC IPT process and reflects the work accomplished by all involved in the process. The APB, an annex to the MIPS, is key because it contains the critical schedule, performance, and cost parameters approved by the IPT/OIPT that are deemed necessary to ensure the program is postured to succeed. The ADM is, of course, also important because it provides the approval to proceed to the next acquisition phase and any special guidance for the PM/PEO. If, when the ADM is signed, the APB is still not approved, the disposition of the APB must be addressed in the ADM and provide a window when the APB is expected to be approved.

(1) *ASARC announcement letter.*

(a) This letter notifies the acquisition community of the formation of the ASARC IPT for a specific program. It must be prepared and distributed in a timely manner, and it is imperative that all ASARC IPT members receive a copy. The ASARC Coordinator prepares the letter in coordination with the DASC and the ASARC Executive Secretary. The Army OIPT Chairman approves and signs the ASARC announcement letter, which includes the proposed ASARC IPT operating guidelines document. The letter also includes meeting time, location, agenda, and any other useful program/process information that is available.

(b) The ASARC announcement letter distribution is to all commands, agencies, and staff activities represented on the ASARC IPT and/or those having specific acquisition responsibilities. The distribution list is coordinated with the ASARC Executive Secretary and should go out at least three weeks before the initial ASARC IPT meeting.

(2) *Modified integrated program summary.* The modified integrated program summary (MIPS) is the only document reviewed by the Army OIPT. For this reason, it is important that it contain all the information necessary for the Army OIPT to make a recommendation to the MDA. The MIPS provides the decision-makers with a single document that contains essential information necessary to make the decision. The MIPS eliminates the need for separate, standalone documents that cause unnecessary duplication of effort.

(a) The MIPS must answer five key questions: is the system still needed, does the system work (from the standpoints of the user, functional staffs, and the PM), are risks identified and manageable, is the program affordable (in other words, funded), has the system been subjected to CAIV analysis.

(b) The PM maintains primary responsibility for the production and content of the MIPS, except for the Assessment Memoranda section. The MIPS is coordinated at the earliest possible opportunity with the ASARC IPT membership to elicit comments and input.

(c) The DA staff and associated activities prepare the assessment memoranda section to address specific points. The validated threat memorandum, prepared by the DCS, G-2, certifies that the threat assessment supporting the system requirements is still valid. The validated need memorandum, prepared by DCS, G-3/5/7 (by CIO/G-6 for IT programs), certifies that the system requirements are based on approved capabilities documents. The operational effectiveness/suitability memorandum, prepared by ATEC, certifies that all required testing has been completed and evaluated and the system has been found to be operationally effective, survivable, and suitable. The Army CIO/G-6 prepares the CIO assessment to certify that the program satisfies statutory and regulatory requirements. PA&E prepares the affordability assessment and also briefs the assessment at the Army OIPT and ASARC. The HSI assessment, prepared by the DCS, G-1, addresses critical issues that could degrade mission performance, lead to increased operations and support costs, or derail acquisition programs. Finally, the issues and risk memorandum is a corporate memorandum prepared by the ASARC IPT under the coordinating supervision of the DASC. The MIPS includes a copy of each of these assessments.

(d) As the only document for review by the Army OIPT, its importance cannot be overstated. However, the MIPS is not a detailed document; it is an executive summary of the program and the issues. As such, no one format fits all programs. Figure 10-13 shows the general format for a MIPS.

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### Modified Integrated Program Summary

#### *Executive Summary*

1. Program Execution Status
2. Alternatives Assessed and Results
3. Cost and Funding Status
4. Threat Highlights/Existing System Shortfalls
5. Acquisition Strategy
6. Risk Assessment and Plans to Reduce Risk
7. Program Environmental Analysis
8. Cooperative Opportunities
9. DISR Migration Plan

#### Annex A-Program Structure

#### Annex B-Acquisition Program Baseline

#### Annex C-Assessment Memorandums

- DCS G-1: MANPRINT Assessment
- DCS G-2: Validated Threat
- DCS G-3/5/7 / CIO/G-6: Approved Need
- ATEC: Operational Effectiveness/Suitability/Survivability
- ASARC IPT: Issues/Risk
- DASA (CE): Cost Summary
- PA&E: Affordability (include total funding)
- Army CIO/G-6: CIO Assessment

Figure 10-13. General format for a MIPS

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(e) The Issues/Risk memorandum requires special mention. It is a key document within the MIPS that identifies all unresolved issues from the ASARC IPT process that require Army OIPT or MDA resolution. The memorandum provides recommended solutions, if applicable, and the risks to the program associated with the issues identified. The memorandum is crucially important to the PM because the objective of the ASARC IPT process is to have no outstanding program issues going into the program review. Therefore, this validates the need for the PM and DASC to keep records of all identified issues and to closely manage the actions required to resolve remaining issues.

(f) Coordinate distribution of the MIPS with the ASARC Executive Secretary. Provide copies to ASARC IPT members for use in preparing their principal prior to the Army OIPT. Provide the copy in sufficient time for the ASARC IPT member to use in briefing his chain of supervision.

(3) *Office of Secretary of Defense decision document.* For ACAT ID and ACAT IAM programs, the PM must propose a scope and format for a decision document that the AAE will approve and provide to the OSD OIPT. Generally, the document will include an executive summary document similar to the MIPS without the assessment memorandum annexes. It includes, as attachments, the statutory and regulatory documents that must be approved and signed by the DAE for ACAT ID/IAM programs. The PM must coordinate closely with the OSD lead to develop a suitable format. Figure 10–14 documents a possible decision document structure.

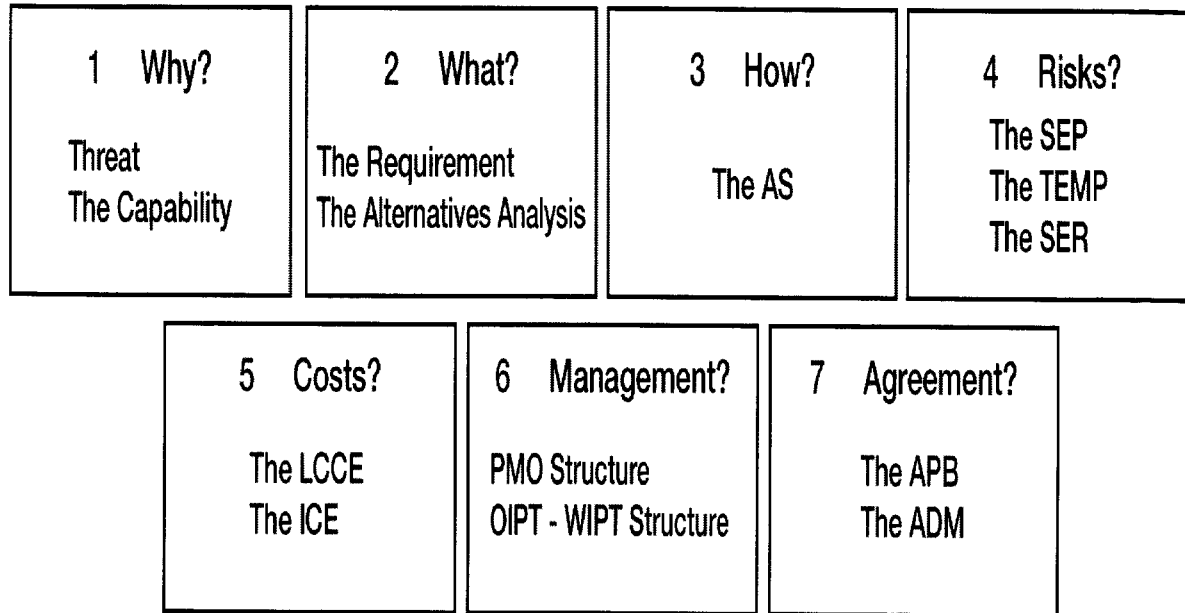


Figure 10–14. Notional DAB/ITAB decision documents

(4) *Acquisition decision memorandum.* The acquisition decision memorandum (ADM) is signed by the MDA and documents the acquisition decisions made. It also establishes the program specific Exit Criteria that must be demonstrated by the next milestone in order for the program to move to the next acquisition phase. The ADM (for ACAT IAC, IC and II programs) is written by the ASARC Executive Secretary and signed by the AAE. There is no prescribed format for the document, but it should include the program specific exit criteria applicable to the next milestone review, the APB, and any other specific guidance directed by the MDA such as delegation of the decision authority to the PEO (other than ACAT I) on specific matters, and so forth. (See fig 10–5 for an example of exit criteria.) (The AAE requires the APB for signature 48 hours prior to an actual ASARC. If the APB is delayed for any reason, its disposition must be documented in the ADM.)



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### Example of ASARC Program Specific Exit Criteria

**Note: The following samples are provided as examples of good, well formatted exit criteria. Exit criteria for each program should be tailored to the specific needs of the program. Use of the specific samples of exit criteria below is not mandated.**

1. Demonstrate the ability of the System A to deliver high volume fires and thermal management on either a weapons hardstand or prototype by conducting four, 15-round fire missions at a rate of no less than six rounds per minute and simulating ten rounds per minute for three minutes.
2. On either a weapons hardstand or prototype, demonstrate the ability to control the Liquid Propellant Regenerative Process by firing four, four-round Multiple Round Simultaneous Impact missions with all rounds impacting within eight seconds.
3. Perform a survivability move of at least 750 meters in 125 seconds; emplace the System and achieve a ballistic solution in 65 seconds.
4. Upload the System B with 100 complete rounds (projectile, propellant, and fuse) in 70 minutes using two projectile types.
5. Demonstrate docking and transfer of 40 complete rounds (projectile, propellant, and fuse) from System A to System B, and undock in 13 minutes.

**Note: The ASARC Executive Secretary will include the Exit Criteria as an attachment to the ADM as appropriate.**

Figure 10–15. Sample ASARC exit criteria

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### 10–36. Review meetings

*a. Army Systems Acquisition Review Council.* There are two types of ASARC reviews, the milestone decision review (MDR) and the program review (PR). The ASARC IPTs support the PM in preparation for both types of review. Preparations for the MDR are normally more complex than a PR (not associated with a DAB program). The IPT/Army OIPT should be engaged in both types of reviews to the extent necessary to answer all questions pertinent to the decision required. Responsibilities of the ASARC IPT include:

(1) The review of all required documentation and assisting the PM in attaining approved documents. In order to start the review process as soon as possible, the appropriate WIPT teams/members should receive early drafts of program documents. The ASARC IPT members should make constructive comments and suggestions as early as possible in the process to minimize effort expended on revisions.

*Note.* There are no regulatory or statutory requirements for documentation at a PR except for those held in response to a Nunn-McCurdy program breach. The PM should consult with the ASARC Executive Secretary and the Army OIPT Chairman to determine any specific requirements the MDA may have for the PR.

(2) Identifying issues to the PM and DASC in a timely manner and support issue resolution through the WIPTs and ASARC IPT process to the maximum extent possible. Early identification and resolution of issues is the key to keeping the review process on schedule.

(3) Designated staff and acquisition activities completing required assessments in a timely manner to support the consolidation of issues and risk findings into the Issues/Risk Memorandum of the MIPS. Required assessments are identified and discussed in paragraph 10–41h(2)(c).

(4) The ASARC IPT members being responsible for keeping their leadership fully informed on the progress of the review process and being responsible for pre-briefing their principals before the Army OIPT meeting and the ASARC. Current policy is to limit attendance at these meetings to those principals with issues requiring resolution at the particular meeting/review in question.

(5) Each member being responsible for recommending to the PM and DASC whether or not their principal needs to attend a meeting. The PM will be available to pre-brief/discuss issues with principals if the ASARC representatives determine that this is necessary.

*b. Preparatory reviews.* Following the preparation phase and the final ASARC IPT meeting, ACAT IAC, IC, and II programs undergo an Army OIPT, then, if required, an ASARC. For ACAT ID/IAM programs, the final OSD staff officer-level meetings are followed by the Army OIPT, the OSD OIPT, and then the DAB/ITAB. If all issues are resolved at the Army OIPT, an ASARC will not be required for ID and IAM programs. The final series of meetings occur with little time to effect major changes in the program. Issue resolution at the ASARC IPT level becomes critical. The PM must ensure to the maximum extent possible that all ASARC IPT and OSD member issues, no matter how small, are recognized, addressed, and resolved to the member’s satisfaction prior to the Army OIPT.

*c. Army OIPT meeting.* The ASA (ALT) Deputy for Acquisition and Systems Management chairs the Army OIPT meeting for ACAT ID, IC, and II programs. The Principal Director for Governance, Acquisition, and Chief Knowledge Office in the CIO/G-6 chairs the Army OIPT for ACAT IAM and IAC programs. The Deputy for Integrated Logistics Support chairs the Army OIPT for sustainment readiness reviews for all programs. At the conclusion of the Army OIPT, there are three possible outcomes: the program is not ready, the program has open issues needing full ASARC resolution, or the program has no open ASARC-level issues and the Army OIPT chair recommends a “paper ASARC” to the AAE. The PM should focus on the preferred Army OIPT outcome, a “paper ASARC.”

(1) *Attendance.* The PEO, PM, all Army OIPT members, and any staff principals that might be involved in issue discussion and resolution normally attend Army OIPT meetings. ASARC IPT members determine if their staff principal should attend and advise the PM and DASC accordingly. This should only be necessary if the office has unresolved issues to brief and the principal’s representation needs to discuss and resolve the open issues. If the staff principal does not attend, the ASARC IPT member should be prepared to confirm the principal’s concurrence with the contents of the MIPS and proposed ADM.

(2) *Agenda.* Table 10–13 provides a typical Army OIPT agenda. Additional time will be allocated when there are issues requiring a staff principal presentation. Briefings should present only the information required to support the decisions requested. It is important that all issues are accorded a fair hearing and every effort made to reach resolution prior to the ASARC.

	<b>Item Presenter</b>	<b>Time</b>
Introduction	PEO	5 min
User briefing	TCM/FP	10 min
Materiel developer briefing	PM	20 min
Independent evaluation	ATEC	10 min
Affordability/cost position	PAED/DASA (CE)	10 min
Discussion	All	30 min
Summary of decision	Chairman	5 min
	<b>Total</b>	<b>90 min</b>

(3) *Preparations.* The ASARC Executive Secretary arranges the Army OIPT meeting to include selecting the date, reserving a room, and notifying attendees. It is held approximately three weeks before the targeted ASARC. The overall briefing package includes information on the following topics/areas:

(a) All programs are required to follow the ASARC briefing template available on AIM, VIS, or from the ASARC Executive Secretary.

(b) The MATDEV briefing should include an update of accomplishments to date and compliance with previous directions; primarily a description of the issues and risks related to the future of the program. The briefing must also address acquisition strategy; schedule, including issues and associated risks; current and future exit criteria; and cost.

(c) The independent evaluation briefing should present the results of required testing and evaluation and must indicate if the system is operationally effective, survivable, and suitable (if no test or evaluation issues exist, the PM may cover testing results in the developer part of the briefing). At MS B, the briefing should assess the system’s potential to meet the requirements outlined in planned test and evaluation.

(d) The DASA (CE) briefs the Army cost position and the PA&E briefs the affordability assessment.

(e) The DASC presents any unresolved issues and the Army staff's risk assessment.

(f) If possible, consolidate all portions of the briefing by the same activity to ensure consistency and standardization. (It is extremely helpful to have the preparer of the slides located in the vicinity of the Pentagon to ensure the quick turnaround of briefing changes.)

(g) The user briefing should focus on issues related to system requirements and should provide a validation of the requirement. Include a discussion of the threat in order to identify current projected enemy capabilities that drive the requirement or affect the program's ability to operate in the threat environment. At the Full Rate Production Decision Review, certification is required that the forces are prepared to accept and operate the system when fielded.

(4) *Outcomes.* It is important to make every effort to conclude the Army OIPT meeting with no unresolved issues. The Army OIPT Chairman determines if the program is ready for the ASARC. He also decides whether or not to recommend a "paper ASARC" to the MDA. In the event that issues still remain, the ASARC review will be held. The PM prepares a recommended attendance list for the ASARC based on the issues/outcomes of the Army OIPT. The recommended attendance list is provided to the ASARC Executive Secretary before issuing final invitations. If the Army OIPT Chairman determines that the program is not ready for the ASARC review, the decision will include specific direction as to the deficiencies requiring correction in order to have an acceptable program. If the Army OIPT Chairman determines that there are serious issues that require the attention of the ASARC, refer to paragraph 10-36d for guidance on the ASARC procedures. If the Army OIPT Chairman determines that a "paper ASARC" is appropriate, the PM and DASC must coordinate with the ASARC Executive Secretary to support the preparation of the staffing package and to ascertain if the recommendation is accepted by the AAE.

d. *Conducting the ASARC.* The ASARC provides senior acquisition managers and functional principals the opportunity to review programs at formal milestones. The ASARC reviews determine a program or system's readiness to enter the next acquisition phase. ASARCs make recommendations to the AAE for programs for which the AAE is the MDA. In addition to milestone reviews, the AAE may initiate a Special ASARC at any time to review the status of a program.

(1) *DAB and ITAB level programs.* The ACAT ID programs are subsequently reviewed by the DAB, where the MDA is the USD (AT&L). ACAT IAM programs are subsequently reviewed by the ITAB, where the MDA is the DAE, unless delegated to the ASD (NII).

(2) *ASARC streamlining.* An objective of the DOD acquisition streamlining procedures is to reduce the number of major program reviews. Therefore, the Army OIPT, concentrating on issues resolvable by the Army, will be the key Army review for ACAT ID/IAM programs. Formal ASARC meetings occur for ACAT ID/IAM programs only if issues remain unresolved after the Army OIPT.

(3) *Special ASARC.* Convening a Special ASARC is especially important when a program (not previously ACAT I) has exceeded or will exceed ACAT I funding thresholds and/or when such programs are between major milestone decisions.

(4) *Attendance.* The ASARC is composed of staff officials and commanders listed in table 10-2. The PM and the DASC provide the ASARC Executive Secretary a recommended ASARC attendance list based on the issues remaining at the conclusion of the Army OIPT. The ASARC Executive Secretary prepares the attendee list and the subsequent attendee notifications. The DASC advises ASARC IPT members of the approved attendance list.

(5) *Agenda.* Table 10-14 is a notional agenda for the ASARC review.

**Table 10-14**  
**Typical ASARC review agenda**

	Item Presenter	Time
Introduction	OIPT Chairman	5 min
Issue(s)	PM	30 min
Discussion	All	20 min
Summary of decision	ASARC Chair	5 min
	<b>Total</b>	<b>60 min</b>

Note:

This agenda will be tailored based on outstanding issues from the Army OIPT

(6) *Arranging for the review.* The ASARC Executive Secretary establishes the date of the ASARC approximately two months in advance and arranges for date placement on the calendars of the ASARC members. The ASARC Executive

Secretary coordinates the conference room and seating arrangements with the Executive Communications and Control (ECC) office.

(7) *Pre-briefing requirements.*

(a) The PEO, PM, Army OIPT Chairman, TCM, DASC, and DCS, G-8 System Synchronization Officer will attend the briefing to the VCSA prior to the ASARC. The ASARC Executive Secretary arranges this briefing through the ECC. The PM/PEO lead the briefing and designate what roles the other members of the briefing party play. The briefing team is limited to no more than four personnel. A read-ahead is submitted to the ECC at least three days before the VCSA pre-brief. At a minimum, the read ahead package includes the HQDA read-ahead paper and the draft ASARC briefing. DASCs can provide their program office with the correct read-ahead format.

(b) The ASA (ALT) does not normally require a pre-brief as he is kept informed by the Army OIPT Chairman. If the ASA (ALT) desires a pre-brief, it will be similar to the VCSAs. The PM and DASC should check with the ASARC Executive Secretary to determine ASA (ALT) pre-brief requirements.

(c) The ASARC IPT representatives brief other principals invited to the ASARC. The ASARC IPT representative has the responsibility for notifying the PM or DASC if their principal desires a pre-briefing or meeting with the PM.

(8) *Outcomes.* The normal outcome of an ASARC is an ADM and an approved APB (or in the case of ID and IAM programs, an approved Army position). The ADM and APB are discussed in paragraph 10-41h(4). If the AAE accepts the Army OIPT Chairman's recommendation that there only be a "Paper ASARC," the ASARC Executive Secretary submits a proposed ADM and APB to the AAE for approval and signature.

### **10-37. Suggestions for a successful milestone review**

Although a program may experience some turbulence prior to an ASARC review, the PM can minimize the turbulence by starting planning early, devoting adequate resources, and assembling a first-rate team to support the effort. The PM staff should use the following suggestions/comments and planning factors to assist in preparation for a milestone review.

*a. Management tips.*

(1) *Documentation status.* Must continuously maintain and keep current. Delegate responsibility for this action to a single individual within the PMO. Establish a document roster that includes the individual/agency responsible for developing the document, the approval authority, phone number, status, delivery date, update milestone(s), and a list of other documents which this document impacts.

(2) *PM-TCM-functional proponent views.* Do not assume that the developer and user see everything the same way. The PM, TCM, and functional-proponent (FP) must make a special effort to ensure everyone concerned is on the same sheet of music. Changes must be coordinated between the PM, TCM, and FP prior to changing the Army OIPT and/or ASARC briefing. The telephone, e-mail and FAX machine are critical tools in keeping everyone informed. Establishing a daily debriefs routine between key PM, TCM, and FP personnel is essential. The TCM, PM, and FP must coordinate all changes to their briefings with each other. The TCM and FP "identifies the requirement"; the PM "identifies how the requirement is met." They must agree.

(3) *Technical advice.* Do not "short change" the ASARC IPT of functional area experts. No one person can know/master a complex program. Ensure the right people are available when you need them. Examples are ILS, HSI, testing, budget, and any special technology. The PM must designate a knowledgeable ASARC IPT Coordinator for the Pentagon ASARC IPT team. Specialty expertise must augment the team as required (for example, test, ILS, and so forth). The PM should not be the "point man" for the ASARC IPT in the Pentagon — he is simply too busy. A member of their staff, with a broad overview of the system should fill this role.

(4) *DASC and SI.* They must be directly involved and kept well informed. They should be involved early and active players in the process. Almost daily contact with and between them is essential to help identify and resolve issues as they arise. Since they are assigned to HQDA to represent the PM and the user, respectively, keeping them in the loop is essential. Some programs are without a DASC. The PEO liaison officer (LNO) often fills this position and because of workload, does not have sufficient time to devote to the system. Use of a knowledgeable experienced support contractor can provide invaluable assistance to the PEO-LNO and minimize any impacts during ASARC preparations.

(5) *ASARC IPT.* The ASARC IPT managers should meet in executive session prior to and after each ASARC IPT meeting. This executive session should consist of the PM, TCM, FP, DASC, SI, and any person whose expertise is specifically required. An executive session enables the key members of the program to get together before start of the meeting to discuss agenda items and any new business issues that need to be presented to the group. Conduct an exit session only if there are unresolved issues at the completion of the general meeting. Recommend holding ASARC IPT meetings in the Pentagon or Crystal City, VA, where the majority of the membership is located. Lastly, closely monitor and hold accountable the ASARC IPT members responsible for documentation preparation during the process leading to the ASARC. A useful technique is to have each individual brief the status of his document at each meeting. Do not let them off with a general statement of "it's-on-track." As a minimum, present a detailed schedule to completion.

(6) *Preparation milestones.* Develop and tightly monitor a milestone tracking process. There are two critically important management tools developed to drive the system/program to a successful milestone decision. First, develop a comprehensive program management plan that provides management at every level. Second, utilize a software package that allows automation of the program management plan to provide useful and time critical reports.

(7) *PEO involvement.* Involve the PEO organization early enough in the program to provide the “clout” that is sometimes necessary when program issues get pushed aside or stalled. Conversely, early involvement normally precludes an organization from becoming an impediment at the 11th hour. The best way to build interest in the program is by keeping the right people well informed and to make them feel they are part of the team. An orientation briefing to the PEO and his staff early on helps set the tone. Forward periodic program briefing updates to the PEO so that he keeps abreast of the current status.

(8) *Rehearsals.* Rehearse key briefings in the presence of an audience for several reasons. First, the briefing team then becomes familiar with each other’s delivery style and the content of their briefing. Second, a rehearsal helps gauge the length of each portion of the briefing. Finally, rehearsal allows the audience time to critique the delivery and briefing substance prior to the final presentation. If at all possible, conduct the rehearsals in the actual Army OIPT/ASARC briefing room. This allows the briefer to become oriented to the room and gives the support staff an opportunity to become familiar with the briefing equipment/capabilities/limitations of the facility.

(9) *Points of contact.* Whenever possible, establish single points of contact for documents, briefings, and scheduling. It is much easier to deal with a single individual.

(10) *Scheduling.* Get briefings scheduled as far in advance as possible. Changes to briefing times/dates appear to happen more frequently when initially scheduled to close to the actual briefing date. The DASC should schedule briefings at least 20 days in advance. The DASC should check with the principal’s Executive Officer two days prior to a scheduled brief to ensure that no changes have occurred. Also, establish, maintain, and post a schedule of the briefings for each week so that everyone knows what is expected. It is extremely important to keep briefing time/date information current and available to the key players in the ASARC process.

(11) *Briefing depth.* Backup slides are important. Backups are the result of our thought process. Never consider them as just “backups” to the main briefing. In essence they permit the PM, TCM, and FP to think an issue through. They may never be used but have served their purpose if they have solidified a thought/concept in the presenters mind.

(12) *Administrative support.* The on-site Pentagon ASARC IPT Coordinator must plan for every possible need to meet their requirements during their stay at the Pentagon. Come prepared. Bring enough supplies to meet all contingencies and establish several alternate means of obtaining supplies should the need arise. It is extremely important that someone on the team be familiar with the Pentagon office structure and floor layout, where to obtain administrative support such as reproduction capabilities, and so on, and to identify those Pentagon offices that can provide other administrative support to the team on an emergency basis. Contact the DASC if you need assistance.

*b. Suggested planning.* Table 10–15 provides a suggested planning guide for a successful milestone review.

<b>Action</b>	<b>Start Time</b>
Establish a list of required program documentation and information needed by the program for the Milestone. Identify key members of ASARC/DAB management team to include OSD Action Officer for ACAT ID programs. Outline a straw man plan to reach the Milestone. If the program management plan is properly constructed, this straw man can be directly lifted from that document. PM initiates	ASARC minus 12 Months
PM/TCM initial caucus with DASC, SI, and ASARC Executive Secretary. Review milestone documentation strategy, IPT (ASARC IPT/WIPT) structure, assign responsibility to an individual to maintain documentation status, and establish administrative requirements	ASARC minus 12 months
PM/TCM prepare and submit Documentation Strategy and IPT Structure to the DASC for processing and approval	ASARC minus 11 Months
Deputy for Acquisition and Systems Management provides decision on Documentation Strategy and IPT Structure	ASARC minus 11 Months
Schedule and convene initial ASARC IPT meeting (PM Chairs, DASC facilitates). Insist that all members of the ASARC IPT attend the initial meeting. Some areas which should be discussed at the ASARC IPT meeting are: Program Status –ASARC IPT Operating Guidelines	ASARC minus 10 Months

**Table 10–15**  
**Suggested planning guide for a successful milestone review—Continued**

Action	Start Time
–Functional Area Team Structure –Milestone Preparation Schedule –Administrative Factors/Requirements –Approved Documentation Strategy	
Hold ASARC IPT meeting. Discussion topics should include: –Program Status –Documentation Status (each responsible individual/agency should present an executive summary orally and in writing of document status) –Identify potential “long poles” for example, BOIP Update, CIO Assessment, Transportability Analysis, Operational Assessment, and so forth –Establish Action Item List; follow through on assigned actions	As required
Begin development of ASARC briefing. Establish a “game plan” for ASARC/DAB Management Team including players and responsibilities	ASARC minus 8 Months
Through ASARC IPT/WIPT teams, establish exact documentation staffing requirements, administrative requirements and logistical support requirements. Establish OIPT and ASARC administrative support milestone calendar. Determine “areas of interest” for potential pre-briefs of principals and crosswalk these with key program documents with use of backup slides. Submit documentation (as appropriate) to DA for staffing. Have DASC develop and maintain a complete POC list. Convene Army OIPT meeting	ASARC minus 7 Months
Continue to “fine tune” MIPS (Decision Document) and ASARC briefing. Confer with ASARC IPT action officers to ensure that they will have sufficient information to conduct pre-briefs of their principals. Review documentation status	ASARC minus 4 Months

**10–38. Summary**

The purpose of this section is to provide an overview of the ASARC/DAB process and serve as a reference document to use in preparation for these reviews. Keeping in mind that minor procedural and policy changes will occur, the data contained herein should be verified in accordance with the suggested milestone preparation schedule discussed in paragraph 10–40. Approximately 12 months prior to the projected ASARC date, the PM should initiate preparation activities for the milestone review.

**Section IX**

**Standard Study Number to Line Item Number Automated Management and Integrating System**

**10–39. Standard study number to line item number automated management and integrating system introduction**

Standard study numbers (SSNs) to line item number automated management and integrating system (SLAMIS) is a web-based system that controls the hierarchical relationships between SSNs, LINs, and NSNs for all Army major items of equipment. SLAMIS is designed to provide Army users easy access to key “Chain-of-Custody” data relationships over the entire life cycle of major items of equipment. It also integrates multiple databases and provides for electronic coordination and database synchronization to HQDA staff, PMs, PEOs, IMs, and other logistics support activities.

*a. Standard study number.* The SSNs serve as the primary data element in the Army portion of the Presidential Budget submission to Congress and resource reports to OSD and Congress. SSNs apply to all Army elements that manage aircraft, missiles, wheel/tracked combat vehicles, ammunition, and other procurement appropriations (PAs) materiel. The SSN provides for the visibility of the funding-through-fielding of Army major items of materiel.

*b. Line item number.* The LIN is the key data element associated with major equipment requirements that successfully pass through the Army review process to begin materiel acquisition with the resources obtained by SSN. The LIN is used in equipment authorization documents used by Property Book Officers to equip combat units. The proper linkage of the resourced SSNs to the LINs is critical in the management of the funding-through-fielding process.

*c. National stock number.* The NSN is a 13-digit number assigned under the Federal Cataloging Program. Each major item of equipment has a unique national item identification number (NIIN) (nine-digit portion of the NSN) associated with a specific LIN. SLAMIS displays the SSN, LIN, NSN hierarchy.

*d. SLAMIS modules.* The following modules are available in SLAMIS to rapidly process requests using electronic coordination features, for data searching, to generate reports, and for data standardization initiatives. When TC decisions are made, the SLAMIS automated Materiel Status Record (MSR) features are used to link the NIIN with the LIN required for authorization documents and life cycle sustainment.

(1) *Requirements.* HQDA/DCS, G-3/5/7 Catalog of Approved Requirements Documents System (CARDS) resides on SLAMIS.

(2) *Standard study number.* The SLAMIS/Logistics Information Warehouse on-line management of all requests, maintenance, and deletion of SSNs and key related data elements.

(a) Flexible search capabilities.

(b) Display of SSN hierarchy and/or complete chain-of-custody.

(3) *Line item number.* On-line management of all—

(a) The ZLIN requests and deletions plus maintenance of ZLIN related data.

(b) The HQDA LIN list that has reports available to all users and an update module restricted to FD users.

(c) Substitute LINs.

(4) *Type classification.* On-line processing of all TC/MSR actions to ensure proper arrangements have been made for Army sustainment of each major item.

(a) *TC Executive Tracking.* Quick look status of ZLIN development status.

(b) *TC Exempts.* On-line processing of unique major item authorizations.

(c) *CTA Updates.* On-line processing of updates to common tables of allowance.

(5) *Army modernization reference data (AMRD).* The AMRD has been integrated with SLAMIS to provide seamless access to modernization planning data and references including:

(a) A robust query and analysis tools.

(b) Evaluate fielding equipment and personnel effects over time and with the ability to aggregate to any echelon.

#### **10–40. Standard Study Number to Line Item Number Automated Management and Integrating System Web Address (uniform resource locator)**

The uniform resource locator (URL) for SLAMIS is <http://www.slamis.army.pentagon.mil>.

### **Section X**

#### **Insensitive Munitions/Unplanned Stimuli**

##### **10–41. Introduction**

Munitions survivability is crucial to the survivability and success of combat systems. History has repeatedly shown that the reactive nature of munitions and combat systems makes them susceptible to degradation and destruction when exposed to stimuli such as fragments and fires. Consequently, the U.S. Army has established the requirement that munition developers incorporate design features via a total systems engineering approach to ensure that all combat system requirements are met while enhancing survivability to unplanned stimuli. The following procedures are intended to assist munitions developers in meeting the Army's insensitive munitions (IM) requirements.

##### **10–42. Insensitive munitions concept and objectives**

The IM concept is to provide effective performance to the warfighter while offering passive force protection via less sensitive munitions. Such a concept can offer distinct tactical advantages.

*a. The IM can become a force multiplier.* Future combat systems, ships, and other military platforms may be able to stay on station longer (engaging the enemy and fulfilling mission objectives) if they are not subject to extensive collateral damage from weapon or ordnance accidents.

*b. The IM offers tactical logistical advantages.*

(1) Force projection is increasingly required in populated urban centers as the war on terrorism and asymmetric warfare expand. Conventional weapons stored in proximity to civilian populations make them an attractive target for terrorists and political extremists to inflict casualties on non-combatants. Weapons that comply with IM requirements minimize the threat to the surrounding community and infrastructure and offer the warfighter an opportunity to increase the forward deployed weapon inventory.

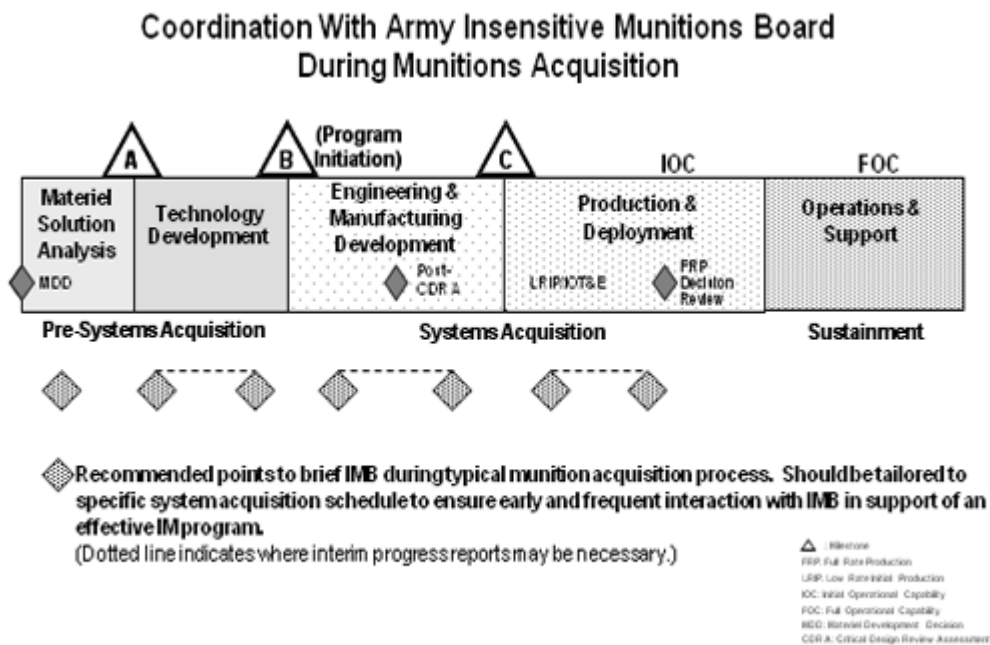
(2) Less sensitive munitions are potentially more cost effective and efficient to transport, store and handle. Weapons that meet IM requirements may be granted a reduced DOD/Department of Transportation (DOT) hazard classification (HC) ranking compared to non-IM variants of the same munition. Reducing the HC may make it possible to reduce the logistics footprint. Less real estate is required to store and handle these munitions, and logistics overhead costs are reduced.

**10-43. U.S. Army Insensitive Munitions Board**

The Army IM Board is chartered by the Army executive agent for IM (AEA-IM) to provide developers with IM technical advice, review test plans, review test results, assess compliance with IM requirements, and propose IM technical positions. The IM Board also serves as the IM technical agent for the AEA-IM, providing the AEA-IM with recommendations concerning the adequacy of developers’ efforts in incorporating IM technologies, and recommendations for additional IM efforts based upon consideration of technology maturity and program constraints.

**10-44. Insensitive munitions program plan elements**

a. The planning and execution of an IM program plan should be initiated at the start of a munition acquisition program and continue through production/fielding of the munition. Early and frequent coordination with the Army IM Board is essential to ensure that IM program elements are adequately addressed and munitions acquisition is not adversely impacted. Figure 10-16, below depicts the Defense Acquisition Management Model, and recommended coordination with the IM Board.



**Figure 10-16. Coordination with Army Insensitive Munitions Board (IMB) during munitions acquisition**

b. The briefing elements for the Army IM Board are at figure 10-17. The IM program plan provides a map for achieving compliance with IM requirements or the basis for preparation for a waiver request if IM compliance cannot be achieved. Some tailoring of the IM program plan may be appropriate based on the specific acquisition program and its relationship to the PEOs IM Strategic Plan, but as a minimum, the IM program plan should include the following:



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**Briefing Elements  
For  
Army Insensitive Munitions Board**

**GENERAL**

Briefer's name, organization, email, telephone number and mailing address

**SYSTEM OVERVIEW**

System/Program title.

Purpose of briefing (for example, To request Army IM Board recommendations...etc.).

Responsible Program/Project/Product Manager (PM).

Indicate what organization is providing system-engineering support for the system.

Indicate what organization is providing IM technical support for the system.

System description to include operation, energetics, Hazard Classification information, logistical configuration.

Development and procurement schedule.

Detailed explanation of any urgency relative to this acquisition.

Provide details on production schedules and quantities to be produced to include the types of units and locations where munitions will be fielded.

Address IM resources.

**REQUIREMENT DOCUMENT**

Describe how IM is worded in the Capabilities Requirement Document.

**THREAT AND HAZARD ASSESSMENT**

Planned logistical and tactical life cycle profile of the system (this should include a description of Joint use or transport of the munition).

Specific character of threats to the system during its life cycle, from MIL-STD-2105C (for example, bullet type, fragment speed, etc.).

Summary of Threat Hazard Assessment (THA).

Status of Army IM Board concurrence with THA.

**IM TECHNICAL APPROACH**

IM technical approach and technologies being investigated.

**IM TESTING AND CONFIGURATION**

Description of IM test plans and/or test item configuration.

Status of the Army IM Board's concurrence with test plans.

Anticipated responses of the system to the IM stimuli in MIL-STD-2105C.

Status/results of IM testing. (If test results will be briefed, the briefing must include a detailed description of the test setup, instrumentation, test results on final configuration, and data which can be used to quantify the reaction levels. Photographs, video, diagrams, and site maps should be used to show size and spatial relationships, locations of instrumentation, and debris patterns.)

**CONSEQUENCES OF IM REACTIONS**

Consequences of predicted or known IM responses: This should reference the system's life cycle (from cradle to grave), and describe the consequences of a munition's response, in terms of anticipated

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Figure 10–17. Briefing elements for the Army IM Board

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damage to logistics systems, combat platforms, operational readiness, mission performance, and human injury. This may require coordination with the combat developer or using organization.

### **STATUS OF IM REVIEW AT MILESTONES**

Current milestone status of munition system.

Name of Milestone Decision Authority for this system.

Dates, results, and outstanding actions of the coordinated IM review required prior to each Milestone Decision.

### **IM WAIVER**

If munition fails or is assessed to fail any of the required IM tests, a waiver must be requested. The waiver request is sent to ASA(ALT) (ATTN: SAAL-SMA / AEA-IM), who subsequently forwards it to the Army IM Board for technical review. DA Pam 70-3 describes the procedures. Describe status of actions planned/taken to seek a waiver.

### **PREVIOUS ARMY IM BOARD RECOMMENDATIONS**

Chart that describes, by date, all previous IMB reviews and recommendations for this system, and current status of each.

**Figure 10–17. Briefing elements for the Army IM Board—continued**

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(1) *Insensitive munitions approach.* Perform an early look at munition development to address currently available, applicable IM technologies; planned/potential method(s) of evaluating technologies; trade studies; down select criteria; program schedule; and funding. Developers are encouraged to coordinate the IM approach with the Army IM Board as early as possible in order to obtain recommendations on IM program structure and appropriate areas of technology investigation.

(2) *Threat hazards assessment.* Evaluation of threats and munition reaction throughout the life cycle, potential collateral damage from the munition reaction, and potential solutions for non-IM responses. The threat hazards assessment (THA) should be coordinated early with the Army IM Board to insure that appropriate threats are identified prior to development of the IM Test Plan. The THA is a living document, which is updated/modified as the system progresses through development. The basic components of a THA are—

(a) *System overview.* Include component descriptions, and energetics.

(b) *Life cycle profile.* Description of cradle to grave sequence of munition including details on logistic configuration(s), transportation method(s), storage configuration(s), fielded configuration(s), and any system specific considerations;

(c) *Threats.* Identify unplanned stimuli that represent credible threat to munition and the part of the life cycle in which the threat is present;

(d) *Munition reaction.* IM behavior, known and/or expected reaction to the threats identified, potential collateral damage to platforms, personnel, and adjacent munitions from these reactions;

(e) *Insensitive munitions tests.* Recommendation on tests to conduct to establish the IM characteristics of the munition item, specify munition configuration and applicable test threat, component and/or full scale tests, as well as any engineering or screening type tests which would be beneficial; and

(f) *Solutions.* Identify any technologies that have potential to improve IM characteristics of the munition item.

(3) *Insensitive munitions test plan.* Proposed IM tests based on the THA, MIL–STD 2105D, as well as any specific system safety/HC requirements to include: the total number of assets needed; configuration and number of test articles for each specific test; detailed test setup description including test parameters (fuel source, heating rate, aim point), instrumentation (for example, real time video, high speed video, pressure gages, witness plates); and information on required data collection/reporting.

(a) Coordination of the IM Test Plan with the Army IM Board prior to conducting testing is essential.

(b) Inadequate test setup, improper testing, and inability to collect required IM data will require testing to be repeated at additional cost and potential program delays.

(4) *Insensitive munitions test results.* Based on approved test plan, detailed documentation of results to include all instrumentation data (for example, video, witness plate photos, pressure traces, thermocouple traces), pre post-test photos, and debris maps.

(a) All IM test results must be presented to the Army IM Board for scoring.

(b) The IM reaction scores provided by the Army IM Board are the only official scores, and will be part of the IM documentation for the munition's IM certification or waiver.

(5) *Plan of action and milestones.* If a munition is not IM compliant due to failing one or more of the IM tests, a plan of action and milestones (POA&M) should be developed to address the failure(s). As a minimum, the POA&M should include the following: identify currently available and/or emerging technologies which offer potential improvement in IM characteristics; proposed plan to evaluate these technologies, associated trade studies and down select criteria; and projected schedule for integrating validated technologies and resulting production quantities effected. The cost of pursuing the POA&M should also be included and noted where funds are available/allocated or where it is an unfunded requirement. The POA&M is now a required part of the IM Waiver process.

(6) *Insensitive munitions waiver request.* If a munition fails or is assessed to fail one or more IM tests, an IM waiver is required. Detailed procedures for developing and submitting an IM waivers are discussed separately below.

### **10–45. Insensitive munitions technical approaches**

Historically, vulnerability reductions have been achieved primarily through subsystem optimization. Examples include adding extra armor to fighting vehicles, compartmentalization on the M1 tank, and low vulnerability propellant for M60 tank munitions. Emerging requirements for future tactical and re-supply systems encompass increased performance, storage of larger quantities of more powerful munitions/missiles, and greater survivability against increased threats. The historical solution of subsystems/increased performance requirements can only be achieved through a system level optimization process involving the application of advanced system design concepts and essential IM technologies as shown in figure 10–18.

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## Tactical and Logistics Survivability Alternatives

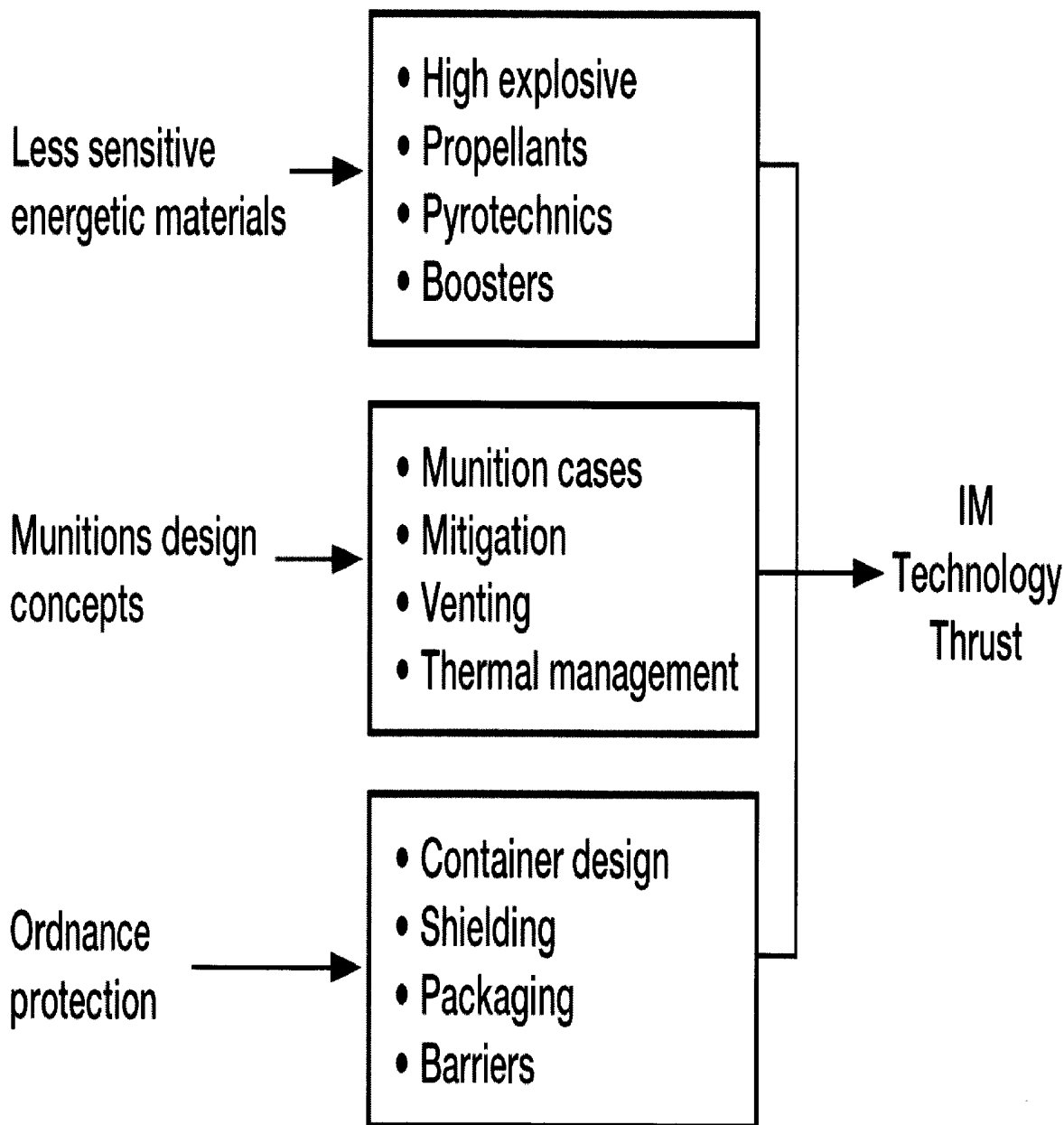


Figure 10–18. IM technical approach

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#### **10–46. Insensitive munitions test and evaluation strategy**

*a.* There are multiple sets of tests used to qualify and assess munitions with respect to threats and hazards. Two of these tests relate specifically to IM issues and are discussed below. System vulnerability tests is an example of other tests that do not have a direct relationship to IM, but the test results can be considered in the waiver request process.

(1) The IM tests contained in MIL–STD–2105D are used to determine a munition’s sensitivity to given stimuli. IM tests are required by the Joint Services Requirements for Inensitive Munitions.

(2) Hazard classification test used to classify munitions for shipping and storage purposes. Hazard classification tests are described in Army TB 700–2 and run in conformity with United Nations (UN) procedures and in conjunction with NATO standardization agreements and Allied Ordnance Publication (AOP) 39.

*b.* The Army IM T&E strategy encompasses tailoring test plans to the maximum extent possible to address all three sets of test requirements with the minimum number of tests. The tests strategy involves using MIL–STD–2105D and TB 700–2 and adding and/or modifying test based on the munition threat, vulnerability, and safety issues. The test and evaluation programs are fashioned to the extent possible to assure that all requirements are fully assessed in one coordinated test program.

#### **10–47. Insensitive munitions test and evaluation guidelines**

MIL–STD–2105D is the military standard approved for use by all components of DOD. A summary of IM testing guidelines is contained in MIL–STD–2105D, Section 4. This covers test procedures and tests for assessing IM performance characteristics and associated safety. It also provides the framework for a consolidated safety and IM test program.

#### **10–48. Insensitive munitions waivers**

*a.* Munitions that fail one or more required IM compliance tests need IM waivers.

*b.* The purpose of an IM waiver is to document Joint staff approval to acquire and field a munition system despite failure of that system to successfully pass all of the required IM tests. Since IM compliance is a system requirement for all munitions, per DOD and Army policy, IM test failures indicate a failure to meet the system requirements. Specifically, IM test failures reflect potential safety and survivability shortcomings of a munition, and increase the severity of the threat posed to combat and logistics systems. Consequently, these shortcomings must be approved through the requirements process, prior to acquisition of the system. Approval of IM waivers rests solely with the JROC and any system that fails one or more IM test must obtain JROC approval of the IM waiver prior to fielding. The Army has established procedures to ensure documentation is developed for systems that fail one or more required IM tests and that this documentation is reviewed for technical adequacy and staffed with the appropriate organizations in order to establish an Army recommendation prior to approval by the JROC. A request for an IM waiver is processed only after all other elements of the IM program have been executed, all reasonable efforts to develop and acquire an IM-compliant system have failed, and the responsible organization has determined that the need to field the noncompliant system outweigh the negative impacts of fielding such a system.

*c.* Annual IM strategic plans (see fig 10–19 for a sample format) prepared by the PEOs are the primary vehicle for submission and consolidation of IM waiver requests for review and approval by the JROC. PEOs should submit IM waiver requests in their IM strategic plans whenever practicable. Approval of a strategic plan essentially serves as annual approval of compiled munition waivers for the PEOs munition portfolio; though individual munitions may have waivers denied or require further review. The POAMs for priority munitions within a PEO Strategic Plan should contain all the essential elements of a waiver and are reviewed in the same detail as standalone waivers. In exceptional cases, an urgent IM waiver request that cannot wait for the annual IM strategic plan submission may be submitted as a standalone out-of-cycle request along with a POAM for achieving IM compliance.

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### **Sample Insensitive Munitions Strategic Plan**

Insensitive munitions strategic plans typically include, at a minimum:

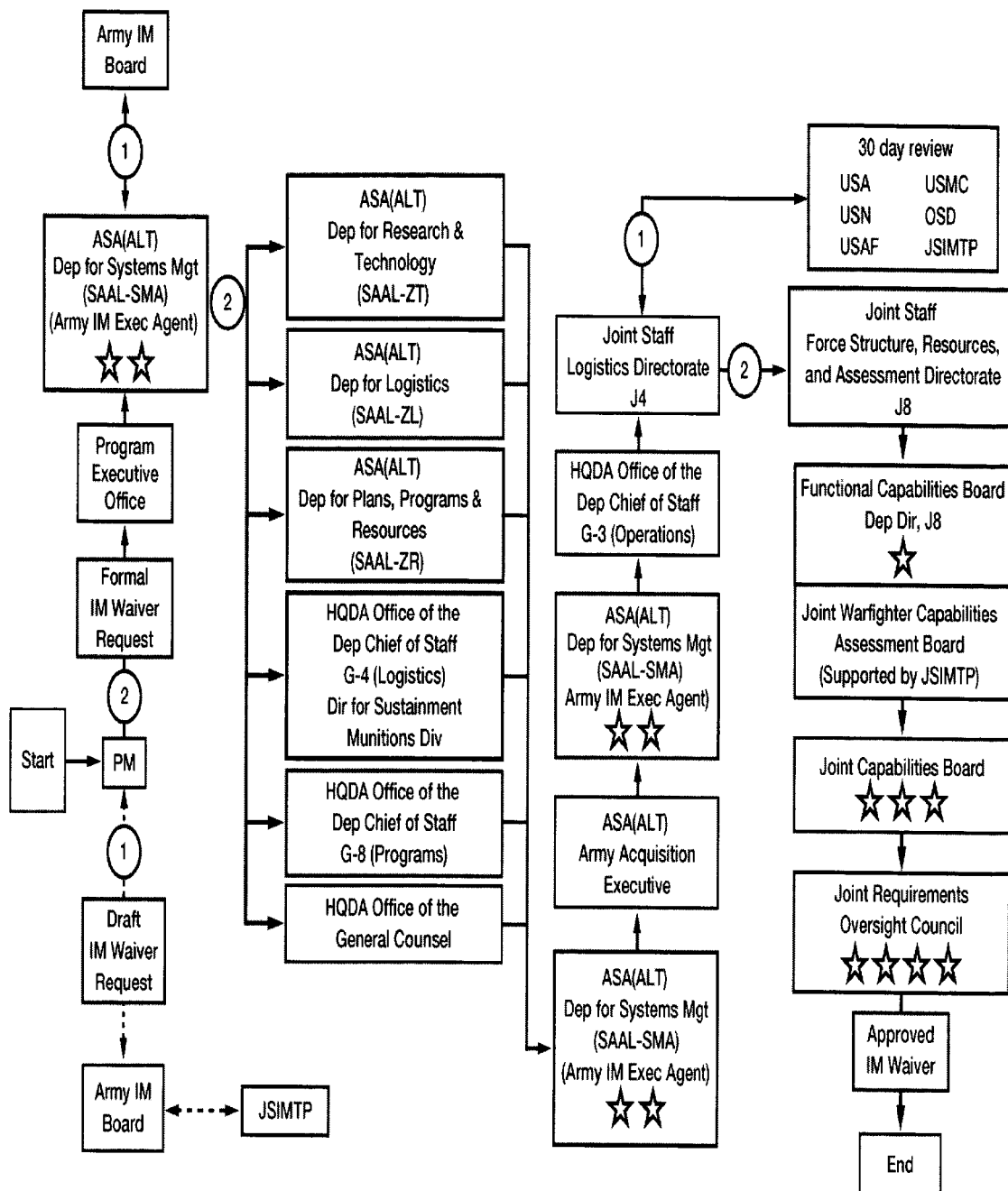
1. An executive summary that discusses the plan's key points and the methodology used in the development and decision process.
2. A complete list of all munitions (for example, legacy, developmental, in production, awaiting production, ATO, FCT, current inventory) for which that PEO has acquisition and life-cycle responsibility.
3. For each munition:
  - a. Munition characteristics, including DOD Identification Code (DODIC), nomenclature/description, mark and/or model, net explosive weight, and the energetic fills (in other words, type of explosive, propellant, pyrotechnic material).
  - b. Procurement and RDTE profile (funding and quantity across the FYDP).
  - c. Baseline IM performance (known or predicted) for the IM threats per MIL-STD-2105C and the Hazard Classification (HC) assigned (interim or final).
  - d. On-going and planned technology integration efforts aimed at IM improvement and HC reduction and the funding supporting such efforts.
  - e. New technologies required for achieving full IM compliance and the schedule for technology maturity.
4. Munition system investment priorities and prioritization criteria.
5. Funded investments to demonstrate and integrate new IM technologies.
6. All funded IM requirements.
7. A list of all munitions that require IM waivers.

Figure 10–19. Sample IM strategic plan

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*d.* The PEOs submit their annual IM strategic plans to the AEA–IM for consolidation in an Army IM strategic plan submission to the Joint Staff. The AAE and the DCS, G–8 approve IM strategic plans prior to submission to the Joint Staff.

*e.* PEOs submit draft IM strategic plans to the Army IM Board before submitting them to the AEA–IM. The PEOs brief their draft plans to the Army IM Board and the AEA–IM prior to final submission. Once submitted to the AEA–IM, the annual IM strategic plans staffing process occurs similar to that shown in figure 10–20 for individual waiver requests (out-of-cycle requests).



Note: The ASA(ALT) Munitions Systems Directorate (SAAL-SMA) handles the processing/staffing of IM waiver requests for the AEA-IM and will request the ASA(ALT) Force Protection Directorate's (SAAL-SFP) assistance with staffing when air defense missiles are involved.

Figure 10–20. Army out-of-cycle IM waiver staffing process

**10–49. Out-of-cycle insensitive munitions waiver requests**

*a.* The request for an individual out-of-cycle IM waiver is typically prepared by the PM's staff or element providing engineering support, and then coordinated at the working level with the Army IM Board for informal review. Figure 10–21 depicts elements of the IM waiver. The Army IM Board conducts an informal review and coordinates with the Joint Services Insensitive Munitions Technical Panel (JSIMTP) for informal recommendations. The informal recommendations from the Army IM Board are provided to the PM or engineering support element to aid in the completion of the formal IM waiver request.



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## Insensitive Waiver Elements

Army IM waiver requests must include the following elements and the detailed requirements discussed in MIL-STD-2105C:

- Description of the munition. Major components, energetic materials; variants and quantities applicable to the waiver request; acquisition milestone status.
- Describe the capability requirement addressed by development and acquisition of this munition.
- Summary of the system life cycle from production to expenditure, to include a description of methods of transport via military and commercial means. Identify specifically the conveyances and methods other services will transport this item for the Army.
- Listing of the types of military units/locations that will receive this item and the quantities anticipated to be produced and distributed by year. If available list specific Army activities/elements and other services.
- Summary of the threats to this item as described in the THA, tests which were identified as necessary based upon the THA, and rationale for not conducting specific tests.
- Detailed description of IM tests conducted for Fast Cook-Off, Slow Cook-Off, Bullet Impact, Fragment Impact, Shaped Charge Jet Impact, and Sympathetic Reaction. For each test, provide detailed descriptions of test setup from the test plan, and detailed results of the tests including specific reactions. Include specific data from other tests (in other words, HC, system vulnerability, etc.) that may be used to assist in evaluating the IM characteristics of the munitions. Provide a summary chart of the Army IM Board scoring of the tests.
- Summary of all previous coordination with the Army IM Board, and the resulting recommendations.
- Description of technology that is currently available, which could improve the IM performance, and the rationale for not pursuing/applying the technology.
- Detailed POA&M that describes the Army's approach to ensure that future buys or variants of this item are IM-compliant.
- Date that the waiver is required, any rationale for urgency of this date, the length of time waiver is needed, and the specific number of items or years of production that the request is for.
- Description of this system/variant's predecessor munitions. Describe how this system/variant's IM characteristics are better or worse than its predecessors.

Description of the operational and cost benefits to the Army if this waiver request is approved, and the negative impacts to the Army in terms of survivability, operations and cost if the waiver request is disapproved.

Figure 10–21. IM waiver elements

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*b.* The formal IM waiver request is developed and forwarded by the PEO to the AEA–IM for Army and subsequent Joint staffing and review. The AEA–IM provides the waiver request to the Army IM Board for technical review and

recommendations. Army IM Board recommendations are provided to the Army IM Executive Agent within 30 days after receipt of the request. After the Army IM Board technical recommendations are provided, the AEA–IM staffs the waiver request with appropriate Army elements, obtains concurrence of the AAE, and then forwards the request through appropriate Army channels for Joint technical review and final JROC approval. The purpose of the Joint technical review is to advise the Joint Staff on adequacy of the request.

c. If there are no outstanding issues with the request, JROC approval is likely. If there are issues, such as failure to incorporate appropriate technology or lack of a POA&M for improvement, the waiver proponent may be required to revise the plans and waiver request. Figure 10–24 depicts the process for staffing of Army out-of-cycle IM waiver requests.

## **Section XI**

### **End Use Certificates**

#### **10–50. Introduction and purpose**

a. This section provides standard guidelines for Army activities to follow in submitting requests for the authorization and execution of end use certificates (EUCs). An EUC is a written agreement to facilitate the transfer of military equipment or technical data to the United States that restricts the use or transfer of that item by the United States. This guide is a companion to DFARS 225.802–71 and DODD 2040.3 and should be used in conjunction with them.

b. It is the policy of the Army to provide needed capability to the warfighter in the shortest practicable time while concurrently reducing risk, and ensuring affordability, supportability, and interoperability. This sometimes results in purchases from foreign defense suppliers. Policies and procedures regarding statutory or policy restrictions with regard to foreign end products can be found in FAR Part 25 and DFARS Part 225.

#### **10–51. End use certificates procedures**

a. *General.*

(1) The ASA (ALT) as the AAE has the staff responsibility for authorizing and executing EUCs.

(2) The ASA (ALT) Procurement Policy and Support Directorate (SAAL–PP) has the management responsibility for processing EUC requests from contracting activities.

b. *Processing upon receipt.*

(1) Army personnel receiving a request from a foreign government for the signing of a certificate to the effect that the Armed Forces of the United States is the end user of the equipment and that restricts the use or transfer of the item by the United States should, in accordance with DFARS 225.802–71, refer to DODD 2040.3 for guidance.

(2) The responsible Army personnel (requirements personnel working with contracting activity personnel) will determine the category of EUC being requested pursuant to 4.3 of DODD 2040.3 and whether the permissible uses of the item(s) are acceptable and appropriate and meet the U.S. needs. If restrictions are encountered that are not acceptable, SAAL–PP should be consulted to ascertain if the restrictions can be removed or reduced. The responsible Army personnel will then prepare a package with sufficient information to permit the AAE to fulfill the procedures delineated in 6.1 of the DODD 2040.3. The package should be submitted through procurement channels to SAAL–PP in accordance with AFARS 5101.290(a).

c. *Review processing.* The action officers in SAAL–PP will perform an initial review to determine if the request contains sufficient information for further processing. If additional information is required to support the request, it will be obtained from the requesting organization. The request will then be sent to appropriate departments within the organization for evaluation and consideration of legal issues, security cooperation activities (foreign military sales, foreign military training, allocation of excess defense articles to foreign countries, armaments cooperation, technology transfer, direct commercial sales, and munitions case processing), and intelligence, counterintelligence, and security countermeasures policy plans, programs, and budgets. Upon successful coordination of the request package as indicated above, the package will be submitted with a recommendation to the AAE to authorize and execute the EUC, or to provide the necessary notification or request the necessary waiver prior to executing the EUC.

d. *Disposition processing.* The SAAL–PP action officer will return the original, signed EUC to the requesting organization.

## **Section XII**

### **Virtual InSight**

### **10–52. Virtual InSight introduction**

*a.* Virtual InSight (VIS) is a HQDA enterprise business system initiative that all Army acquisition programs will utilize in support of the Army MDR process.

*b.* The VIS capability utilizes commercial software and implements standardized business practices; provides for standardized project, workplan, workspace, document, and briefing templates; and proactively manages the scheduling of tasks, activities, and events associated with the execution of a program decision review. The VIS also provides for a document management subsystem that is the authoritative repository for Army programmatic documentation as well as a source of information related to milestone decision events.

*c.* Upon full implementation, all programmatic documentation associated with all ACATs will be maintained in VIS. It will serve as a tool the ASARC Secretary, DASCs, PEOs, PMs, ASARC IPTs, and Army OIPTs use in the preparation for ASARC, IPR, and DAB reviews.

### **10–53. Virtual InSight goals and objectives**

*a.* A driving factor in VIS development was to streamline and standardize, to the maximum extent practical, milestone review business processes and practices. The VIS capability meets Army acquisition community business requirements and practices.

*b.* With the decision to implement VIS, the ASA (ALT) leadership seeks to meet the following goals and objectives:

(1) Improve the overall process of preparing, coordinating, and staffing programmatic documentation required for program and project decision reviews.

(2) Improve the visibility of documents, and reduce management effort in preparing consolidated program and project review packages. Standardized management and preparation should improve visibility and oversight.

(3) Improve visibility of project plan and execution information. Make program information more readily accessible so that users can effectively tailor task assignments.

(4) Enhance document management capabilities and efficiencies. A simplified and streamlined program and project documentation process reduces the time for preparation of individual documents (this includes creation of a document repository).

(5) Improve the effectiveness of the issue management process.

(6) Provide a set of templates for new program and project related documents, taking advantage of the easy to use, self-service user interface. Standardized document templates reduce training requirements, and enhance consistency and general productivity.

(7) Improve the capability to track and manage the document creation and review process.

(8) Improve project status reporting.

(9) Provide key project information and notifications in a timely manner.

(10) Manage rosters of team members involved in the review process.

(11) Conduct “virtual” meetings with numerous attendees from dispersed physical locations, working collaboratively to review and edit specific documents.

(12) Tighten security around the program and project review process by leveraging secure system architectures rather than manual distribution of materials.

(13) Reduce development and maintenance costs associated with individual PM management tools.

### **10–54. Virtual InSight web address (uniform resource locator)**

The uniform resource locator (URL) for VIS is <https://vportal.altess.army.mil/vis>. Product Manager Acquisition, Logistics & Technology Enterprise Systems & Services, within Program Executive Office Enterprise Information Systems, is responsible for VIS implementation, deployment, and training.

## **Section XIII**

### **Probability of Success Reporting**

#### **10–55. Probability of success**

The probability of success (P(S)) report is used for internal Army management of ACAT I and II programs. It is submitted through the acquisition information management (AIM) system on a monthly basis. The P(S) metric was developed by ASA (ALT) and the DAU. It measures the program health of a program by analyzing both internal (Program Requirements, Resources, Execution) and external (Program Fit in Capability Vision, Program Advocacy) parameters. The P(S) metric produces an objective program score based on an algorithm that weights individual parameters and sub factors. The sub factors roll up to determine the parameter scores. The summation of the parameter scores provides the P(S) for the program.

Additionally, all sub factors and parameters are provided a color rating of green, yellow, or red based on the numerical score assigned. Parameters that have a rating of 100 percent to 80 percent will receive a green color rating. Parameters that have a rating between 80 percent and 60 percent will be rated yellow. Parameters below 60 percent will be rated red.

#### **10–56. Probability of success reporting**

All Army ACAT I and II PMs are required to submit P(S) reports monthly, beginning the month after achieving a successful program initiation decision. Reports will be processed through the PEO to HQDA. The DASC will prepare an executive summary for his program, highlighting significant events and key issues. All reports are reviewed at monthly ASA (ALT) O–6 and 2-star reviews. The P(S) application also includes automatic information paper triggers. If any parameter or sub-factor receives a red rating or the program experiences a downward trend from the previous month, the DASC is required to submit an information paper to explain the cause. If a parameter is red for 6 months or yellow for 12 months, another information paper is required. These information papers will focus on how the program will move from red/yellow back to green.

### **Section XIV**

#### **Program Status Reporting**

##### **10–57. Annual reports**

The ACAT I programs must submit annual reports through OSD to Congress. Major Defense Acquisition Programs (ACAT ID/IC) submit a SAR within 60 days of delivery of the President’s Budget to Congress per 10 USC 2432. The SAR updates what has happened with the program since the previous annual report. In cases when there has been a major milestone decision, a unit cost increase exceeding 15 percent or more, or a schedule delay exceeding 6 months or more, a quarterly SAR may be required after the quarters ending in June or September. Major Automated Information Systems (MAIS) (ACAT IA) programs are required per 10 USC 2445c to submit a MAIS annual report (MAR) within 45 days of delivery of the President’s Budget to Congress. There is no provision in statute for a quarterly MAR to Congress.

##### **10–58. Quarterly reports**

The ACAT I programs submit a quarterly DAES update through the Army to OSD. The quarterly DAES is submitted through the Army’s UADDE application within the AIM system. The electronic UADDE submissions are ported into the OSD Defense Acquisition Management and Information Retrieval system where all annual, quarterly and monthly program reports can be accessed. The quarterly DAES report contains the approved APB with updated Current Estimates for all APB parameters. The quarterly DAES report also includes a unit cost update (for MDAP programs only) that meets the statutory requirement of 10 USC 2433. Official program breaches are conveyed via the DAES Current Estimates as well as via a program deviation report from the PM to the MDA. See paragraph 10–15, above, for additional detail.

##### **10–59. Monthly reports**

ACAT I programs submit a monthly DAES to OSD as well as the quarterly DAES. The monthly DAES is abbreviated to five charts and contains the PM’s assessment of the program in five areas (performance, schedule, cost, funding, and logistics) against both the programs APB and contracts. OSD staff review the monthly submissions and give their own assessments for leadership. Selected programs then brief Service and OSD leadership at a monthly DAES review.

### **Section XV**

#### **Clothing and Individual Equipment**

##### **10–60. Clothing and individual equipment**

*a. Scope of CIE.* Clothing and individual equipment (CIE) items are relatively low cost items that are worn and used by the individual Soldier. They are part of the Soldier’s equipment and integral components of the Soldier as a System. As such, they must be functionally compatible. CIE policy applies to the Active Army, the National Guard Bureau, the USAR, and the Reserve Officers’ Training Corps. CIE is worn in accordance with AR 670–1. CIE includes the following three categories:

(1) *Clothing bag items and dress uniform items.* All Army uniforms in the initial and supplemental clothing allowances contained in CTA 50–900 for enlisted Soldiers; mess, dress and service uniforms for officers; and optional purchase uniform items for all Soldiers (AR 670–1).

(2) *Optional purchase uniforms.* Clothing bag and dress uniform items that officers and enlisted personnel may procure from Army military clothing sales stores (AMCSSs) with personal funds.

(3) *Organizational clothing and individual equipment (OCIE).* Items issued to enlisted and officer personnel in accordance with CTA 50–900, CTA 50–909, or CTA 50–970. OCIE items may be authorized for issue to designated Department of the Army civilians. These items are usually issued from central issue facilities (CIFs) and remain the property of the U.S. Army. These items include, but are not restricted to, ballistic/personal protection clothing and equipment; tactical/environmental clothing; nuclear, biological, and chemical clothing and equipment; and individual Soldier/unit equipment.

*b. CIE acquisition.* In general, the acquisition of CIE follows the DOD acquisition process. Requirements are identified through the JCIDS process and acquisition follows the DOD acquisition model. The PEO Soldier has overall acquisition and total life cycle systems management responsibility for CIE. With the exception of Army Uniform Board items, PEO Soldier is the MDA for ACAT III-level OCIE. The PEO Soldier is the MDA for ACAT II-level OCIE when delegated by the AAE.

(1) The Defense Supply Center Philadelphia (DSCP) (a DLA activity and member of the PM's IPTs) has up-front involvement with performance specification preparation and production contract planning. DSCP is the source of supply sustainment of OCIE items.

(2) For optional purchase uniform and clothing bag items, the Army and Air Force Exchange Service (AAFES) should be included as a member of IPTs. AAFES procures optional purchase and clothing bag items for sale in AMCSS. Coordination with AAFES is necessary to ensure that optional purchase and clothing bag items are producible, sustainable, and available.

*c. The Army Uniform Board.* The AUB is the primary review forum for clothing bag, mess, dress, service, and optional purchase clothing items. The DCS, G–4 chairs the AUB. The AUB resolves issues, provides, and obtains guidance and makes recommendations to the Chief of Staff, Army (the MDA for clothing items covered by the AUB). The requirement for an AUB meeting is usually generated by the receipt of documentation initiated by the PM for CIE (under PEO Soldier) requesting a formal review. Additional information concerning the AUB is in AR 70–1, chapter 8.

*d. Basis of issue.* In accordance with AR 71–32, CIE items for CTA 50–900 not having personnel, maintenance, or training impact are exempt from BOIP requirements. Most CIE items do not have a significant impact in these areas. For most CIE items, a streamlined basis of issue procedure can be followed utilizing DA Form 5965 (Basis Of Issue For Clothing and Individual Equipment (CIE)). When appropriate, the BOIP processes outlined in AR 71–32 are followed.

*e. CIE replacement.* At a minimum of five year intervals, PM CIE reviews the technical data package and item specification to determine the continued utility of an item. If appropriate and cost effective, improvements of the basic design or component materials may be applied to extend the item's service life. PM CIE coordinates potential changes with the appropriate organizations (TRADOC, DSCP, and OCIE Central Management Office (CMO)). CIE items are replaced when they no longer conform to acceptable performance/safety/design standards.

*f. CIE sustainment and disposal.* Disposal of unserviceable products or obsolete items is accomplished by the user or owning command in accordance with disposal procedures documented in the supportability strategy or applicable technical manuals, or as published by the OCIE CMO for centrally managed items. For non-centrally managed items, the local supply room or supply support activity provides disposition instructions.

*g. CIE funding.*

(1) *Initial fielding.* HQDA provides central funding and priorities to PEO Soldier for initial fielding of new introductory OCIE items.

(2) *CIE sustainment.*

(a) CIE sustainment items recorded on unit property books or CIE items not managed by CMO are funded through the training resource model (TRM) with funds provided to the Army Commands.

(b) CIE sustainment items centrally managed by CMO are funded through the OCIE CMO for all Active Army units.

(c) CIE sustainment items centrally managed by CMO and located in reserve component (RC) units and CIFs are funded with RC funds with visibility to the CMO to provide information for Army level decisions.

(d) CIE sustainment items that are not centrally managed by CMO and are in RC units and CIFs are funded through the TRM with funds provided to the units.

(3) *Clothing bag items.* Clothing bag items are funded as military pay and allowance for both the initial clothing bag issue at enlisted basic training and for the annual clothing replacement allowance (CRA) provided to enlisted Soldiers to replace worn out clothing bag items. Officers are not provided clothing bag or a CRA and are expected to procure and maintain their personal uniform items.

**10–61. OCIE Central Management Office**

The OCIE CMO is an organization within the Clothing and Heraldry Product Support Integration Directorate of the U.S. Army Tank-Automotive and Armaments Command LCMC. The CMO responsibilities in the CIE acquisition process include—

- a.* OCIE total asset visibility.
- b.* Central management of OCIE sustainment funding.
- c.* Disposition instructions for excess OCIE including directing lateral transfers from CIFs with excess to CIFs short OCIE.

## **Appendix A**

### **References**

#### **Section I**

##### **Required Publications**

###### **AR 70–1**

Army Acquisition Policy (Cited in para 1–4e.)

###### **DODD 5000.01**

The Defense Acquisition System (Cited in para 3–38.) (Available at <http://www.esd.whs.mil/dd/>.)

###### **DODI 5000.02**

Operation of the Defense Acquisition System (Cited in para 1–5c.) (Available at <http://www.esd.whs.mil/dd/>.)

###### **DOD Defense Acquisition Guidebook**

(Available at <http://www.dau.mil/tools/dag/>.) (Cited in para 1–23b(4).)

#### **Section II**

##### **Related Publications**

A related publication is a source of additional information. The user does not have to read it to understand this publication. DOD publications are available at <http://www.esd.whs.mil/dd/>; AFARS/DFARS/FARs are available at <http://far-site.hill.af.mil/>. ANSI publications are available at <https://www.ansi.org/> for ordering. MIL–HDK and standards are available at <http://quicksearch.dla.mil/qssearch.aspx>. USC material is available at <http://uscode.house.gov>.

###### **AFARS Part 5101.290(a)**

Routing of Documents and Mailing Addresses

###### **AFARS Part 5119**

Small Business Programs

###### **Allied Ordnance Publication (AOP) – 39**

Insensitive Munitions Development, Assessment and Testing

###### **AMC Pam 70–8**

Guide to Unsolicited Proposals

###### **AMC–STD–2549A**

Configuration Management Data Interface Standard

###### **American National Standards Institute (ANSI)/American Society for Quality Control (ANSI/ASQC) Q90 Series**

Quality Management and Quality Assurance Standards

###### **American Society for Testing and Materials (ASTM) E1925**

Engineering and Design Criteria for Rigid Wall Relocatable Structures

###### **ANSI 649**

Configuration Management

###### **ANSI/ASQC Z1.4**

Sampling Procedures and Tables for Inspection by Attributes

###### **ANSI/ASQC Z1.9**

Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming

###### **AR 5–12**

Use of the Electromagnetic Spectrum

###### **AR 11–18**

The Cost and Economic Analysis Program

###### **AR 15–39**

Department of the Army Intergovernmental and Intragovernmental Committee Management Program

**AR 15-41**  
Chemical, Biological, Radiological, and Nuclear Survivability Committee

**AR 25-1**  
Army Information Technology

**AR 25-2**  
Information Assurance

**AR 25-30**  
Army Publishing Program

**AR 34-1**  
Multinational Force Interoperability

**AR 40-5**  
Preventive Medicine

**AR 40-10**  
Health Hazard Assessment Program in Support of the Army Acquisition Process

**AR 70-41**  
International Cooperative Research, Development, and Acquisition

**AR 70-50**  
Designating and Naming Military Aerospace Vehicles

**AR 70-57**  
Military-Civilian Technology Transfer

**AR 70-75**  
Survivability of Army Personnel and Materiel

**AR 71-9**  
Warfighting Capabilities Determination

**AR 71-32**  
Force Development and Documentation-Consolidated Policies

**AR 73-1**  
Test and Evaluation Policy

**AR 75-15**  
Policy for Explosive Ordnance Disposal

**AR 200-1**  
Environmental Protection and Enhancement

**AR 335-15**  
Management Information Control System

**AR 340-21**  
The Army Privacy Program

**AR 350-1**  
Army Training and Leader Development

**AR 350-38**  
Training Device Policies and Management

**AR 380-5**  
Department of Army Information Security Program

**AR 380-10**  
Foreign Disclosure

**AR 381-11**  
Intelligence Support to Capability Development



**AR 385–10**  
The Army Safety Program

**AR 385–16**  
System Safety Engineering and Management

**AR 385–64**  
U.S. Army Explosives Safety Program

**AR 550–51**  
International Agreements

**AR 602–1**  
Human Factors Engineering Program

**AR 602–2**  
Human Systems Integration in the System Acquisition Process

**AR 670–1**  
Wear and Appearance of Army Uniforms and Insignia

**AR 690–950**  
Career Program Management

**AR 700–70**  
Application of Specifications, Standards, and Related Documents in the Acquisition Process

**AR 700–90**  
Army Industrial Base Process

**AR 700–127**  
Integrated Logistics Support

**AR 700–139**  
Army Warranty Program

**AR 700–142**  
Materiel Release, Fielding, and Transfer

**AR 702–7**  
Product Quality Deficiency Report Program

**AR 702–7–1**  
Reporting Of Product Quality Deficiencies Within The U.S. Army

**AR 702–11**  
Army Quality Program

**AR 708–1**  
Logistics Management Data and Cataloging Procedures for Army Supplies and Equipment

**AR 715–9**  
Contractors Accompanying the Force

**AR 735–5**  
Policies and Procedures for Property Accountability

**AR 750–1**  
Army Materiel Maintenance Policy

**AR 750–10**  
Army Modification Program

**AR 750–43**  
Army Test, Measurement and Diagnostic Equipment

**AR 750–59**  
Army Corrosion Prevention and Control Program

**Army Acquisition Workforce Human Capital Strategic Plan 2017–2021**

(Available at <https://asc.army.mil/web/hcsp/>.)

**CJCSI 3170.01I**

Joint Capabilities Integration and Development System (Available at <http://www.jcs.mil/library/cjcs-instructions/>.)

**CJCSI 6212.01D**

Interoperability and Supportability of Information Technology Systems and National Security Systems (Available at [http://www.dtic.mil/cjcs\\_directives/](http://www.dtic.mil/cjcs_directives/).)

**CTA 8–100**

Need title

**CTA 50–900**

Need title

**DA Pam 5–11**

Verification, Validation, and Accreditation of Army Models and Simulations

**DA Pam 25–30**

Consolidated Index of Army Publications and Blank Forms

**DA Pam 73–1**

Test and Evaluation in Support of System Acquisition

**DA Pam 600–3**

Commissioned Officer Professional Development and Career Management

**DA Pam 700–127**

Integrated Product Support Procedures

**Defense Acquisition Workforce Improvement Act of 1990**

(Available at <https://www.congress.gov/bill/101st-congress/house-bill/5211>.)

**Department of the Army Cost Analysis Manual**

(Available at <https://www.asafm.army.mil>.)

**Department of the Army Economic Analysis Manual**

(Available at <https://www.asafm.army.mil>.)

**DFARS Part 204.71**

Uniform Contract Line Item Numbering System

**DFARS Part 206.3**

Other Than Full and Open Competition

**DFARS Part 211**

Describing Agency Needs

**DFARS Part 217.204(e)(i)**

Contracts

**DFARS Part 225**

Foreign Acquisition

**DFARS Part 225.802–71**

End User Certificates

**DFARS Part 242**

Contract Administration

**DFARS Part 246**

Quality Assurance

**DI–PACK–80880**

Transportability Report (Available at <http://everyspec.com/data-item-desc-dids/>.)

**DOD 5010.12–M**

Procedures for the Acquisition and Management of Technical Data

**DOD 5500.07–R**

Joint Ethics Regulation (JER)

**DOD 7000.14–R**

Department of Defense Financial Management Regulation (FMRS)

**DODD 1322.18**

Military Training

**DODD 2040.3**

End Use Certificates (EUCS)

**DODD 4120.11**

Standardization of Mobile Electric Power (MEP) Generating Sources

**DODD 4120.15E**

Designating and Naming Military Aerospace Vehicles

**DODD 4151.18**

Maintenance of Military Materiel

**DODD 4630.05**

Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)

**DODD 5230.25**

Withholding of Unclassified Technical Data from Public Disclosure

**DODD 5400.07**

DOD Freedom of Information Act (FOIA) Program

**DODD 5530.3**

International Agreements

**DOD Standardization Directory – 2 (SD–2)**

Buying Commercial and Non developmental Items: A Handbook (Available at <http://www.dsp.dla.mil/documents/sds.htm>.)

**DOD Technology Readiness Assessment Deskbook (TRA)**

(Available at <https://www.dau.mil/>.)

**DODI 1400.25**

DOD Civilian Personnel Management System

**DODI 3222.03**

DOD Electromagnetic Environmental Effects (E3) Program

**DODI 4650.01**

Policy and Procedures for Management and Use of the Electromagnetic Spectrum

**DODI 5000.60**

Defense Industrial Base Assessments

**DODI 5000.66**

Defense Acquisition Workforce Education, Training, Experience, and Career Development Program

**DODI 5200.39**

Critical Program Information (CPI) Identification and Protection Within Research, Development, Test, and Evaluation (RDT&E)

**DODI 5230.24**

Distribution Statements on Technical Documents

**DODI 8500.01E**

Cybersecurity

**DODM 4120.24**

Defense Standardization Program (DSP) Procedures

**DODM 4140.01**

DOD Supply Chain Materiel Management procedures (Volumes 1 through 12)

**EIA/IEEE J–STD–016**

Standard for Information Technology-Software Life Cycle Processes-Software Development: Acquirer-Supplier Agreement (Available at <http://standards.ieee.org> or e-mail [std.info@ieee.org](mailto:std.info@ieee.org).)

**EIA Standard 836**

Configuration Management Data Exchange and Interoperability (Available at [http://www.geia.org/.](http://www.geia.org/))

**Executive Order 12114**

Environmental Effects Abroad of Major Federal Actions (Available at [www.archives.gov](http://www.archives.gov).)

**FAR Part 2**

Definitions Of Words and Terms

**FAR Part 12**

Acquisition of Commercial Items

**FAR Part 25**

Foreign Acquisitions

**FAR Part 46**

Quality Assurance

**FAR Part 48**

Value Engineering

**FAR Part 52, clause 52.246**

Contractor Inspection Requirements

**FAR Part 52, clause 52.248–1**

Value Engineering

**FAR Sub Part 3.104**

Procurement Integrity

**FAR Sub Part 5.2**

Synopsis of Proposed Contract Actions

**FAR Sub Part 15.304**

Evaluations Factors and Significant Subfactors

**FAR Sub Part 15.6**

Unsolicited Proposals

**FAR Sub Part 16.5**

Indefinite-Delivery Contracts

**FAR Sub Part 19.5**

Set-Asides for Small Business

**FAR Sub Parts 42.15**

Contractor Performance Information

**GEIA–STD–0007**

Logistics Product Data (Available at ?)

**IEEE/EIA 12207**

Information Technology (Available at <https://standards.ieee.org>.)

**ISO/AS9001**

Quality Management System

**MIL-HDBK 189**  
Reliability Growth Management

**MIL-HDBK-502**  
Product Support Analysis

**MIL-HDBK-669**  
Loading Environment and Related Requirements for Platform Rigged Airdrop Materiel

**MIL-STD-209**  
Lifting and Tiedown Provisions

**MIL-STD-810G**  
Environmental Engineering Considerations and Laboratory Tests

**MIL-STD-814D**  
Requirement for Tiedown, Suspension Extraction Provisions on Military Materiel for Airdrop

**MIL-STD-881**  
Work Breakdown Structures for Defense Material Items

**MIL-STD-882E**  
System Safety

**MIL-STD-913**  
Requirements for the Certification of Sling Loaded Military Equipment for External Transportation by Department of Defense Helicopters

**MIL-STD-961E**  
Defense and Program-Unique Specifications Format and Content

**MIL-STD-962D**  
Defense Standards Format and Content

**MIL-STD-963C**  
Data Item Descriptions (DIDs)

**MIL-STD-967**  
Defense Handbooks Format and Content

**MIL-STD-1366**  
Transportability Criteria

**MIL-STD-1472G**  
Human Engineering

**MIL-STD-1474E**  
Noise Limits

**MIL-STD-1791**  
Designing for Internal Aerial Delivery in Fixed Wing Aircraft

**MIL-STD-1839D**  
Calibration and Measurement Requirements

**MIL-STD-1916**  
DOD Preferred Methods For Acceptance Of Product

**MIL-STD-2105D**  
Hazard Assessment Tests for Non-Nuclear Munitions

**MIL-STD-3018**  
Parts Management

**MIL-STD-46855**  
Human Engineering Program Process and Procedures

**National Aerospace Standard 411**

Hazardous Materials Management Program (Available at [www.acc.dau.mil](http://www.acc.dau.mil).)

**National Defense Authorization Act for Fiscal Year 2016**

(Available at <https://www.gop.gov/bill/h-r-1735-national-defense-authorization-act-for-fiscal-year-2016/>.)

**National Defense Authorization Act for Fiscal Year 2017**

(Available at <https://www.congress.gov/bill/114th-congress/house-bill/4909>.)

**OMB Circular A–11**

Preparation, Submission and Execution of the Budget (Available at <https://www.whitehouse.gov/omb/circulars/>.)

**OMB Circular A–131**

(Available at <https://www.whitehouse.gov/omb/circulars/>.)

**Performance Based Logistics: A Program Managers Product Support Guide**

(Available at <http://www.dau.mil/>.)

**Public Law 101–510**

National Defense Authorization Act for Fiscal Year 1991 (Available at <https://www.congress.gov/public-laws/115th-congress/>.)

**Public Law 103–355**

A Bill to Revise and Streamline the Acquisition Laws of the Federal Government, and For Other Purposes (Available at <https://www.congress.gov/>.)

**SB 700–20**

Army Adopted/Other Items Selected for Authorization/List of Reportable Items

**SD–1**

Standardization Directory (Available at <http://www.dsp.dla.mil/>.)

**SD–19**

Life Cycle Cost Savings Through Parts Management

**Talent Management Concept of Operations for Force 2025 and Beyond**

(Available <https://usacac.army.mil/pubs/force-2025-and-beyond-human-dimension>.)

**TB 700–2**

Department of Defense Ammunition and Explosives Hazard Classification Procedures (Available at <https://armypubs.army.mil/productmaps/pubform/tb.aspx>.)

**Transportation Engineering Agency (TEA) Pam 70–1**

Transportability for Better Deployability (Available at [www.tea.army.mil](http://www.tea.army.mil).)

**U.S. Army Talent Management Strategy, Force 2025 and Beyond**

(Available at <https://talent.army.mil/documents/>.)

**Value Engineering**

(Available at <https://www.whitehouse.gov/omb/circulars/>.)

**29 CFR 1910**

Occupational Safety and Health Standards “Hazards Communications” (Available on the Internet at <https://www.ecfr.gov/cgi-bin/ecfr?page=browse1>.)

**32 CFR 651**

Environmental Analysis of Army Actions (AR 200–2) (Available at <https://www.ecfr.gov/cgi-bin/ecfr?page=browse>.)

**5 USC, Appendix 2, Section 3**

Federal Advisory Committee Act

**5 USC 552**

Public Information; Agency Rules, Opinions, Orders, Records, and Proceedings

**10 USC, Chapter 87**

Defense Acquisition Workforce, Section 1701–1764, Defense Acquisition Workforce Improvement Act of 1990, as amended

**10 USC 130**

Authority to withhold from public disclosure certain technical data

**10 USC 852**

Art. 52. Number of votes required

**10 USC 1701 – 1764**

Defense Acquisition Workforce Improvement Act of 1990, as amended

**10 USC 1735**

Education, training, and experience requirements for critical acquisition positions

**10 USC 2220**

Performance based management: acquisition programs

**10 USC 2304**

Contracts: competition requirements

**10 USC 2350a(e) and (g)**

Cooperative research and development agreements: NATO organizations; allied and friendly foreign countries

**10 USC 2364**

Coordination and communication of defense research activities and technology domain awareness

**10 USC 2366**

Major systems and munitions programs: survivability testing and lethality testing required before full-scale production

**10 USC 2377**

Preference for acquisition of commercial items

**10 USC 2399**

Operational test and evaluation of defense acquisition programs

**10 USC 2432**

Selected acquisition reports

**10 USC 2433**

Unit cost reports

**10 USC 2434**

Independent cost estimate; operational manpower requirements

**10 USC 2435**

Baseline description

**10 USC 2445c**

Reports; quarterly reports; reports on program changes

**10 USC 2451**

Defense supply management

**10 USC 2452**

Duties of Secretary of Defense

**10 USC 2453**

Supply catalog: distribution and use

**10 USC 2454**

Supply catalog: new or obsolete items

**10 USC 2456**

Coordination with general services administration

**10 USC 2457**

Standardization of equipment with North Atlantic Treaty Organization members

**10 USC 2460**

Definition of depot-level maintenance and repair

**10 USC 2464**

Core logistics capabilities

**10 USC 2466**

Limitations on the performance of depot-level maintenance of materiel

**10 USC 2469**

Contracts to perform workloads previously performed by depot-level activities of the Department Of Defense: requirement of competition

**10 USC 2474**

Centers of industrial and technical excellence: designation; public-private partnerships

**10 USC 2533a**

Requirement to buy certain articles from American sources; exceptions

**15 USC 638**

Research and development

**22 USC 2778**

Controls of arms exports and imports

**29 USC 794**

Nondiscrimination under Federal grants and programs

**40 USC Subtitle III**

Information Technology Management

**41 USC 253**

Competition requirements

**41 USC 432**

Value Engineering

**Section III****Prescribed Forms**

This section contains no entries.

**Section IV****Referenced Forms**

Except where otherwise indicated below, the following DA forms are available on the Army Publishing Directorate website (<https://armypubs.army.mil>); DD forms are available at <http://www.esd.whs.mil/dd/>.

**DA Form 2028**

Recommended Changes to Publications and Blank Forms

**DA Form 4610–R–E**

Equipment Changes In MTOE/TDA (EGA)

**DA Form 5965**

Basis of Issue for Clothing and Individual Equipment (CIE)

**DD Form 250**

Material Inspection and Receiving Report

**DD Form 1423**

Contract Data Requirements List

**DD Form 1494**

Application For Equipment Frequency Allocation

**DD Form 2589**

Acquisition Position Restricted To Member of the Armed Forces



## **Appendix B**

### **Technology Maturity Assessment Guidelines**

#### **B-1. Technology maturity assessment**

The technology maturity assessment (TMA) is the basis for the Army's technology readiness assessment accomplished by the Deputy Assistant Secretary of the Army (Research and Technology). The TMA is prepared by the PM responsible for the program under review, with assistance from appropriate participating S&T organizations.

#### **B-2. Technology maturity assessment format**

Figure B-1 is a sample format for a TMA. See paragraph 1-21 for additional information.

---

**TITLE PAGE**

(SYSTEM TITLE)  
TECHNOLOGY MATURITY ASSESSMENT

Date

**AUTHENTICATION PAGE**

Prepared By:

\_\_\_\_\_  
Name  
Job Title  
Organization

DATE: \_\_\_\_\_

\_\_\_\_\_  
Name  
Job Title  
Organization

DATE: \_\_\_\_\_

Approved By:

\_\_\_\_\_  
Name  
Job Title (APM or higher)  
Organization

DATE: \_\_\_\_\_

**TABLE OF CONTENTS PAGE**

(SYSTEM TITLE)  
Technology Maturity Assessment

TABLE OF CONTENTS

<u>Paragraph</u>	<u>Paragraph Title</u>	<u>Page</u>
1.0	PURPOSE	1
2.0	PROGRAM OVERVIEW	1
2.1	Objective	1
2.2	Program Description	TBD
2.3	System Description	TBD
3.0	CRITICAL TECHNOLOGIES (CT)	TBD
3.1	Process Description	TBD
3.1.1	Critical Technology Identification	TBD
3.2	CT Assessment	TBD
3.2.1	Subsystem A	TBD
3.2.2	Subsystem B	TBD
3.2.3	Subsystem C (and so on...)	TBD
3.3	Technologies Considered But Not Selected	TBD
3.4	System-Level Technology Readiness	TBD
3.5	Summary	TBD

Figure B-1. Sample technology maturity assessment format

---

**ASSESSMENT BODY**

(SYSTEM TITLE)  
Technology Maturity Assessment

## 1.0 PURPOSE

This document provides a Technology Maturity Assessment for the (SYSTEM TITLE) program in support of the Milestone (MS) *(B or C, as appropriate)* acquisition decision process. The assessment will identify and demonstrate the degree to which critical technologies are mature and capable of meeting the program objectives.

A listing of acronyms is found at the end of this document.

## 2.0 PROGRAM OVERVIEW

The following paragraphs briefly define the (SYSTEM TITLE) program, its objectives and the detailed program and system descriptions.

## 2.1 Objective

The (SYSTEM TITLE) program will achieve (desired capability / result) by fielding advanced technology to *(brief description of desired capability)*...

## 2.2 Program Description

The (SYSTEM TITLE) mission is to...

The proposed technology transition / upgrade began because *(describe why the proposed effort was conducted)*...

The current proposal is to field *(describe performing organization(s), what is to be done, and when, where, and how it will be done)*...

Future modifications / block upgrades are expected to provide...

## 2.3 System Description

The (upgraded or proposed new SYSTEM TITLE) is based on *(describe system / technology heritage)*....  
Note: heritage technology may or may not be the basis for pursuing the new system.

The current fielded system / technology status is ...

Subsystems, components, and proposed technical advancements are described as follows (system WBS at Attachment 1):

*(include figures and tables as necessary)*...

## 3.0 CRITICAL TECHNOLOGIES (CT)

Figure B-1. Sample technology maturity assessment format-continued

This section details the process utilized for the Technology Maturity Assessment of the (SYSTEM / TITLE) program...This section tells who led the assessment, what organizations or individuals participated, their competence, and their "independence" from the program.

### 3.1 Process Description

Describe process to: identify critical technologies and systems; define appropriate technology readiness levels and standards corresponding to those levels, and; assess technologies - conduct analysis, show qualification by similarity, or demonstrate maturity to desired standards. Provide justification that analyses and/or tests conducted do in fact demonstrate attainment of desired performance. Introduction here provides context and overview for following subsection.

#### 3.1.1 Critical Technology Identification:

a. Define critical technologies. Those vehicle technologies, components, or subsystems, the success or failure of which most significantly affect the ability of a (SYSTEM TITLE) to meet the system requirements as identified by (the capabilities document (ICD/CDD/CPD), the System Performance specification, etc.). (A technology element is critical if the system being acquired depends on this technology element to meet capability thresholds (with acceptable development cost and schedule and with acceptable production and operation costs) **and** if the technology element or its application is either new or novel.)

b. Identify critical technologies, components, or subsystems in the (SYSTEM / TITLE) WBS (Attachment 1). Show the WBS or Systems Architecture and the Critical Technologies (CT). Explain the criterion for technologies that are included in the CT list. Names and describes the critical technologies, describes their function, and environment.

Subsystem Title	Critical Technologies
Subsystem A	...
Subsystem B	...
Subsystem C	...
....	...

Figure x. (SYSTEM TITLE) Critical Technologies

### 3.2 Assessment

*Assess the Critical Technologies against the required threshold capabilities to determine the Technology Readiness Level achieved to date.*

*The following sections briefly describe the levels desired and achieved by each critical technology.*

*The current TRL definitions used by the Army are those in the current Technology Readiness Assessment (TRA) Deskbook prepared by the Office of the Deputy Under Secretary of Defense (Science and Technology). The TRA Deskbook can be found at <http://www.defenselink.mil/ddre/links.htm>*

*The report text in the following sections provides background and defends the selected attributes and objectives (i.e., provide not just the fact that tests were conducted, but address the test results). The technology proponent is expected to attach supporting technical documentation (e.g., test results) to validate the assessments provided in this attachment.*

#### 3.2.1. Subsystem A

Technology A1:

Figure B-1. Sample technology maturity assessment format-continued

*Justify selected attributes and objective TRLs. Describe the technology (subsystem, component, or technology), the function it performs and relationship to other parts of the system. Use the requirements documents (ICD, CDD, CPD), system specifications, or other such documents to describe what the warfighter expects in terms of performance, physical attributes (size, weight, volume, required power), environmental or programmatic characteristics. Provide a synopsis of the development history and current status. The required attributes and the technology's demonstrated performance may be presented in chart form.*

*Defend selection of TRL performance standards / tests / environment. Describes the environment in which the technology has been demonstrated, number of prototypes built, relevance of test conditions, and results achieved.*

*Discuss results achieved. References papers, presentations, data and facts that support the assessment.*

*Evaluation result: The TRL is therefore assessed as (number rating). (Discussion as required applying the criteria for TRLs and assigning a readiness level to the technology.)*

Technology A2:

3.2.2. Subsystem B

3.2.3. Subsystem C

3.3. Technologies Considered But Not Selected

*If appropriate, and to prevent speculation and later questioning, discuss the process and rationale for the decision not to select certain technologies that may have been considered for selection as CTs.*

3.4 System-Level Technology Readiness

*This section is to address the technology readiness of the entire system incorporating the individual technologies discussed in Sect. 3.2, to include the implications of integration with existing / legacy systems. This section must provide confidence that the entire system can meet its specified requirements for the program decision point under consideration.*

3.5 Summary

The (SYSTEM TITLE) program has performed a TRL Assessment for all of the critical technologies identified in the WBS with results summarized in Figure y. (All CTs should be at TRL 7 except for critical manufacturing technologies, which should be at TRL 8.)

*(IF APPLICABLE, as for upgrades.) All other elements of the (SYSTEM TITLE) were assessed at the readiness level nine since there is no change from the current fielded (SYSTEM TITLE).*

<b>TECHNOLOGY</b>	<b>ASSESSMENT</b>	<b>REMARKS</b>
(Subsystem / Component Title) (Critical Technology A) (Critical Technology B) ...	(TRL rating) (TRL rating) ...	Brief explanation of rating or list of factors supporting the rating.
(Subsystem / Component Title) (Critical Technology C) (Critical Technology D) ...	(TRL rating) (TRL rating) ...	Brief explanation of rating or list of factors supporting the rating.

Figure B-1. Sample technology maturity assessment format-continued

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...	...	
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Figure y. Summary

#### 4.0 CONCLUSIONS

*(State conclusions regarding technology readiness – briefly summarize justifications above)*

#### ACRONYMS

...

### **ATTACHMENT**

#### **ATTACHMENT ONE (SYSTEM TITLE) Work Breakdown Structure**

<b>WBS LEVEL</b>	<b>DESCRIPTION</b>
1	...
1.1....	...
2	...
3...	...

Figure B-1. Sample technology maturity assessment format–continued

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## Appendix C

### Sample Technology Information Paper and Executive Summary Format

#### C–1. Technology information papers and executive summary

Technical information papers and EXSUMs are developed and used to identify and collect domestic and foreign government, industry, and academic sector technological investments; and evaluate their relevance and capability to meet the Army's S&T strategic vision and direction as delineated in the ASTMP (Volumes 1 and 2) in accordance with 10 USC 2364 and DODI 5000.02, enclosure 2, paragraphs 3 and 4. This includes, but is not limited to, specific technologies to support current or proposed ATOs. See paragraph 1–24 for additional information.

#### C–2. Sample formats

Figure C–1 is a sample format that reporting organizations can use when preparing a TIP. Figure C–2 explains the nature of the information that would typically be covered in a TIP. Figure C–3 is a sample EXSUM format.

#### C–3. Proponent

The proponent for TIPs and EXSUMs is the Director, 31A Directorate, RDECOM (AMSRD–SS–I), 6000 6th Street, Suite 100, Fort Belvoir, VA 22060–5608.

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#### Data Items Requested From TIP Originator

Title:  
Synopsis:  
Description:  
Warfighter Payoff:  
Country:  
Date of Research/Item:  
Source:  
Reporting Organization and Point of Contact:  
Relevance to Current Operations:  
Preliminary Evaluation (Quality of technology/item. See "Quality of Work" paragraph in Appendix C.)  
Maturity/TRL (Starting TRL and ending TRL):  
TRADOC FOC:  
Quality of Work:  
Copyright:  
Proprietary:  
Disclosure Guidance:  
Recommended Assessing Organization(s):  
ASTMP Category/Taxonomy:  
Army Needs Cross Reference:  
Applicable RDECOM IPT:  
File Attachments: (if any)  
Reporting Organization Comments:

Figure C–1. Sample TIP format for reporting organizations

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## Typical TIP Data Fields and Instructions

**Title** Titles should describe the content of the information. They should contain enough information to let a user determine whether or not a given record is of interest. As a result, titles will generally duplicate key information from other fields; however, they should be as concise as possible. Title case is preferred, but not mandatory. Titles must be strictly factual and should provide some insight into the nature and scope of the information contained. *Descriptors that read like popular magazine or newspaper headers are not acceptable.* Title should be no more than 160 characters.

**Examples:**

Poor: Elbonia develops world's best mortar system;  
Better: 60mm Low cost mortar system.  
Poor: Nanotechnology developments in the Far East;  
Better: Nanotechnology Coatings;  
Best: Nanotechnology Conductive Coatings for fabrics.

**Synopsis** This *short* description should be generic, and clear, concise and technical in nature, but written for the generalist or layperson. The synopsis (or abstract or summary) should be capable of standing alone and should contain the country, company, or other source of the information. Do not include proprietary or official-use only information as the synopsis will have a wider distribution than the complete TIP. (The default distribution statement for the synopsis will be distribution to any DOD organization or support contractor for evaluation and Defense purposes. Others must request copy from originator, assessor, or TIP manager.)

**Description** Main body of the TIP. Provide as much information as is necessary to assess the science or technology for U.S. Army use. Quantitative information (for example, 15 seconds, greater than 40 KM, less than 4 hours to repair) is preferred and easier to assess against equivalent U.S. efforts than qualitative information (for example, excellent error rates, better reliability). Copies of commonly assessable public domain information such as defense news or magazine articles are discouraged unless additional, value-adding information can be added. Include references to web sites or additional information. Do not "copy & paste" large sections of company brochures or web pages if otherwise available; attach separate files for this purpose if needed.

Include a short description of why the "X" effort and products are special or unique; in other words, is there no readily available commercial supplier in the U.S. or overseas? Explain how this technology and approach will overcome any roadblocks. Make sure to talk about the opportunities for major technical advances. Identify start and end TRL as a metric. Provide estimated start date and date of completion. Does the Army need to fund this program? What is the initial estimate of the Army's required investment for the "X" participation in the proposed program by fiscal year?

**Warfighter payoff** Include the potential military utility for this item or technology. For basic research, include the potential relevance of this work to the Army vision for the Future Force. For applied technology, technical developments, or end items, include the operational benefits, increased military capabilities, and/or savings in operations and support.

Identify any capability gap that this technology addresses using technology shortfalls from the current TRADOC gap analysis.

Include qualitative information and compare with any current capability. Describe (1) how the results will allow for improved performance over existing systems, (2) how the Army will be able to do something it cannot now do, and/or (3) if the effort is a computer code or simulation, what useful product it will provide to the Army or to the Army R&D community.

**Country** List the primary country of origin. Recommend, as much as possible, that this be limited to a primary country. National affiliations are still the primary designation, but, with globalization, may not be

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Figure C-2. Typical TIP information



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adequate. One can use Multinational for activities of an identifiable entity (such as consortia and joint ventures) that transcends national boundaries, where the S&T leadership and capabilities are shared or distributed. In cases where there is a defined leader, such that a country affiliation for ownership and control of the capabilities described can be identified, that country should be listed.

Source List the organization, publication, and/or point of contact where the science or technology reported was found. List the company, military R&D organization, or academic institution, if applicable. Rule of thumb: If the U.S. Army were to initiate a program to obtain this science or technology, list the organization with whom that would be done. Indicate if this is an academic, military, government, or industry point of contact.

Reporting Organization List the point of contact and organization with complete contact information who is reporting this information.

Relevance to Current Operations The suspense date(s) for coordination and initial assessment of a TIP will be determined by its relevance to *current operations*. The initial relevance rating for the TIP will be provided by the originator and the TIP processed accordingly. The rating is not linked to the *uniqueness* of the S&T opportunity. Rather, ratings shall be based on operational needs, technology maturity, and fielding potential.

Mature & Relevant The technology addresses an *immediate* operational need and could be demonstrated in less than one year with a TRL level of seven to nine. The originator has determined that the overall significance/impact on current operations is high. Accordingly, the review and assessment should be afforded expedited processing.

Not Relevant to Current Operations The science or technology *is applicable* to the Future Force and could be demonstrated in two or more years. The originator has determined that the maturity of the technology is relevant to the Current or Future Force but is at a TRL4 or less and its overall significance/impact on current operations is *low*. Accordingly, the assessment for a Future Operations application will be routine.

Maturity The reporting organization estimates the technology maturity in accordance with the TRL definitions provided in the TRA Deskbook prepared by the DUSD(S&T). (The TRA Deskbook can be found at <http://www.defenselink.mil/ddre/links.htm>.) The correspondence between TRLs assigned to given S&T activities, and the TRLs associated with the products of those activities is, at best, approximate. TRLs can be defined only in the context of an item's readiness for a specific system application. Mature technologies with well-established markets may fail when pushed to a higher performance level. Similarly, emerging technologies may transition quickly to practical applications if performance compromises can be made.

Date of Research/Item This date should be the best estimate of the currency of the R&D or business activity described in the content, not the date of the report the information was taken from, or the date the information was provided. If not known, enter the date of the submission.

Quality of Work The reporting organization's estimate of the relative quality of the technology/item in comparison with the U.S. and other world-wide efforts. Ratings should be in the form of "1 to 4 diamond ratings" as established in the ASTMP:

◆◆◆◆ The research or technology development program equals or exceeds state-of-the-art and has demonstrated strong and broad capabilities in most aspects technology or research area. The S&T organization is considered to have world-class capabilities in the identified major area.

◆◆◆ The research or technology development program is at or just below state-of-the-art and has demonstrated significant capabilities in some aspects of the technology or research area. However, the S&T organization does not have the breadth or depth or capability to challenge world leaders in the area.

Figure C-2. Typical TIP information—continued

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◆◆ The S&T organization's research or technology development program has demonstrated capabilities in a few niche aspects of the major technology or research area, but does not have broad capabilities. However, the niche capabilities could beneficially contribute to U.S. Army S&T activities.

◆ The S&T organization has limited capability in the major technology or research area.

Copyright (Yes/No) Indicate if the TIP contains copyrighted material, for example, text directly copied from other sources such as news clippings, web pages, company brochures, or industry test reports. While there are times when this may be warranted (for example, a particularly hot item that someone wants to get into the system for evaluation), the majority of TIPS should be evaluative in nature rather than cut and paste from other sources.

Proprietary (Yes/No) Indicate if the TIP contains proprietary information that must be protected from release to third parties. Proprietary information is given to the Government with the expectation that it will be held in confidence. TIPS should be tagged as "proprietary" only if the intellectual content of the TIP itself reveals proprietary information. If such is the case, the information should be identified well enough for readers to protect it. An example would be company-supplied detailed design information that would be withheld from another competing company. Note that some companies mark everything as proprietary to protect themselves, including even public release marketing material. Unless there is truly information that requires a higher level of protection (such as no release to the OSD GTKB or DTIC), enter "no."

Disclosure Guidance The reporting organization assigns a distribution statement for the TIP in accordance with paragraph 1-24 above and DODD 5230.24; note the synopsis will have a wider distribution than the complete TIP. This is related to the previous proprietary determination and will control distribution of the TIP.

When making this disclosure guidance decision, keep in mind this information will be compiled in a DOD data base with the following caveat: "In submitting this information, the originator certifies that, to the best of his/her knowledge and belief, the material is original or, if excerpted from copyrighted or proprietary sources, the release guidance statement selected is in accordance with: (1) The expressed written authorization of the original source of the information regarding the disclosure of the information, or, (2) other written notices and guidance regarding acceptable and permitted use of the information."

The disclosure guidance determination refers to the TIP itself, not any associated file attachments. Those attachments should have their own distribution and information protection markings in accordance with paragraph 1-25 above and DODD 5230.24.

Recommended Assessing Organization(s) A customer requesting a TIP can request assessment by the U.S. Army, DOD, or other R&D organization(s) for notification of and to request assessment of the science or technology.

ASTMP Category/Taxonomy Includes a reference to either basic research or applied technology development.

Army Needs Cross Reference Composed of the following:

- Any Army shortfall requirement provided by TRADOC
- Top five items of S&T from each of the MATDEV Army Commands' centers, laboratories, and institutes
- Top five items of S&T from the FAST teams
- Top five items of S&T from the REF
- Top five items of S&T from each PEO

Applicable RDECOM IPT A customer requesting a TIP can request assessment of a TIP by an IPT.

Figure C-2. Typical TIP information—continued

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TRADOC force operating capabilities (FOCs) Identifiers contained in TRADOC Pamphlet 525-66.

File Attachments Supporting files may be submitted with the TIP. Submitted attachments will be provided to the “for you information” addressees and assessor(s). Note, however, that submitted attachments may not be available when entering the TIP into the Army data base. Any supporting documentation requested by the customer should be provided.

Reporting Activity Comments Any specialized knowledge of the reporting activity that will aid in the assessment can be provided here.

**Figure C-2. Typical TIP information—continued**

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### **EXSUMs**

#### **Cover These Points In Paragraph Format:**

Title – All caps and bold font

Synopsis:

Country of Technology and Name of Industry, Agency, or Institution:

Supporting FOC:

Preliminary Evaluation (Quality of technology/item. See “Quality of Work” paragraph in figure C-2, above):

Maturity/TRL:

Satisfies Which Item From Army S&T Requirements List:

International Technology Center/Collector Point of Contact Information:

**Figure C-3. Sample EXSUM format for reporting organizations**

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## Appendix D

### Matériel Developer's Pocket Guide to Health Hazard Assessments

#### D-1. The Army health hazard assessment program

a. The Army's health hazard assessment (HHA) program is designed to identify and eliminate or control health hazards associated with the life cycle management (LCM) of new or improved matériel and weapon systems. The HHA program focuses on potential health hazards resulting from training, combat, maintenance, and disposal throughout a system's life cycle.

b. There may be several health hazard assessment reports (HHARs) completed throughout the LCM of a system to support milestone decision reviews, safety releases, matériel releases, and so on. Developers, testers, evaluators, users, maintainers, logisticians, and disposers use the HHARs to identify and safeguard against health hazards.

c. The Army's HHA program supports the Army acquisition community's compliance with health assessment requirements contained in DOD and Army Regulations and Army Acquisition Executive HSI Policy. The proponent is The Surgeon General (TSG) and USACHPPM is TSG's lead agent.

d. For more detail, consult AR 40-1, AR 70-1, paragraph 1-5j, AR 602-2, and the DAG.

#### D-2. How the health hazard assessment process works

a. *MATDEV perspective.* The MATDEV should initiate the HHA process during a system's technology development phase. The HHAs are done for all types of acquisition programs to include matériel changes, non-developmental items, and new development.

b. *The process.*

(1) *Identification of the potential health hazards.* In coordination with the developer, potential health hazards are identified and design guidance to eliminate or control the hazards are detailed in an initial HHAR (IHHAR). The developer is provided lessons learned from similar predecessor systems retrieved from the HHA program database.

(2) *Health hazard categories addressed by the Army HHA program:* Acoustic energy (impulse, steady-state, blast-overpressure).

(a) Biological substances.

(b) Chemical substances.

(c) Oxygen deficiency (ventilation).

(d) Radiation energy (laser, radio frequency, ionizing).

(e) Shock (rapid acceleration/deceleration).

(f) Temperature extremes and humidity.

(g) Trauma.

(h) Vibration (whole body and segmental).

(3) *Early integration of health hazard concerns.* The IHHAR informs the MATDEV about potential health hazards early in the acquisition process. Control strategies for these hazards are integrated into the program's system engineering process. Also, the information should be reflected in documents such as CDDs, CPDs, RFPs and early design specifications. NDI programs should use the IHHAR to tailor market investigations.

(4) *Collection of the health hazard data.* The developer is responsible for providing information to the medical assessor. The data already may exist (in other words, that from a predecessor or like system may be sufficient) or it may be acquired during developmental/technical (and sometimes user/operational) testing. The information from the IHHAR should be incorporated into test plans (for example, the TEMP and detailed test plans) to acquire new data.

(5) *Assessment of the health hazard data.* When the health hazard data is provided to the Army Medical Department (AMEDD) independent medical assessor (IMA), an assessment is performed. Often there are multiple health hazard issues; therefore, the expertise of people from several scientific disciplines is required. A matrix concept is employed to address multiple health issues. A team of assessors is formed and coordinated by USACHPPM, HHA program. The product of this process is the HHAR, which meets the requirements of AR 40-10, AR 70-1, and AR 602-2.

(6) *Allow sufficient time for the HHA.* The HHA process requires interaction between developer, tester, and matrixed AMEDD communities and should occur throughout the life cycle of a development program. Requests for HHA support should be initiated as early as possible, but at least 90-120 days prior to a milestone in order to allow for data transmission, mail delays, and additional data needs. Completion of the HHAR requires adequate information and data provided to USACHPPM by the developer.

(7) *Completion.* Provide the completed HHAR to the system safety; HSI; and environmental, safety, and health coordinators. Incorporate the identified health hazards and associated recommendations into the HSI and system safety issue/hazard tracking logs. Ensure the HHAR is used to update the programmatic environment, safety and occupational

health evaluation (PESHE). Provide USACHPPM HHA program the results of risk mitigation and management decisions associated with the health hazards identified in the HHA.

### **D-3. Steps to request a health hazard assessment**

- a. Step 1.* Prepare a HHA request memorandum and submit it via the USACHPPM Web site. It should contain—
  - (1) Program name and technical POC, address, ACOM/MSC, phone and fax numbers, e-mail address.
  - (2) System nomenclature.
  - (3) Acquisition category.
  - (4) Purpose of the system.
  - (5) System components.
  - (6) Life cycle system phase.
  - (7) Funds available to support HHA on-site work (if necessary).
  - (8) System prototype availability (where/when).
  - (9) Purpose of the HHA.
  - (10) When the HHA report is required.
  - (11) For NDIs, describe the health standards applied in the product design and health problems that surfaced during testing and/or market investigation.
  - (12) Number of planned systems and users/operators.
- b. Step 2.* Assemble these documents (if available) with the HHAR request and provide to the IMA when requested:
  - (1) Safety assessment report.
  - (2) PESHE.
  - (3) Program's capability document.
  - (4) System HSI management plan.
  - (5) TEMP.
  - (6) Detailed test plan/test reports.
  - (7) Acquisition strategy report.
  - (8) Operational summary mode/mission profile.
  - (9) User technical manuals.
  - (10) Other health hazard reports (for example, reports from commercial vendors, other military services, other government agencies, or foreign countries).
  - (11) Sampling data or test results (from measures of the typical health hazard categories shown earlier).
- c. Step 3.* Submit request to—
  - (1) Go to the USACHPPM website: <http://chppm-www.apgea.army.mil>.
  - (2) At the USACHPPM home page, click on "Request Services".
  - (3) Complete steps 1, 3, 4, and 5 and submit your request after attaching a signed formal memo (from step 1 above).
- d. Mailing address and phone numbers.* Commander, USACHPPM, U.S. Army HHA Program (MCHB-TS-OHH), 5158 Blackhawk Road, Aberdeen Proving Ground, MD 21010-5403; telephone commercial 410-436-2925 or DSN 584-2925; facsimile x-1016
- e. Request submittal.* Send your request via a signed formal memorandum (via e-mail) as soon as possible. Budget for HHA program reimbursable support. Early HHA program involvement prevents last minute surprises or delays. Normally it takes 90-120 days from the date we receive a complete request package to prepare an HHA report.
- f. Documentation reviews.* Request for program document reviews should be sent to Commander, USAMEDDC&S (MCCS-FCC-P), 1400 E. Grayson Street, Fort Sam Houston, TX 78234-5052. The telephone numbers are DSN 471-1622 or commercial 210-221-1622; facsimile x-0121.

## **Glossary**

### **Section I**

#### **Abbreviations**

**AAC**

Army Acquisition Corps

**AAE**

Army Acquisition Executive

**AAFES**

Army and Air Force Exchange Service

**AAR**

Association of American Railroads

**AAW**

Army Acquisition Workforce

**ABCA**

American, British, Canadian, Australia

**ABCS**

Army Battlefield Command System

**ABO**

Army Budget Office

**ACAM**

Army Cost Analysis Manual

**ACAT**

acquisition category

**ACDP**

Acquisition Career Development Plan

**ACEIT**

automatic cost estimating integrated tools

**ACF**

acquisition career field

**ACM**

acquisition career manager

**ACMA**

Acquisition Career Management Advocate

**ACMO**

Acquisition Career Management Officer

**ACOM**

Army command

**ACP**

Army cost position

**ACRB**

acquisition civilian record brief

**ADCSINT**

Assistant Deputy Chief of Staff for Intelligence

**ADM**

acquisition decision memorandum

**ADPE**  
automated data processing equipment

**AEA-IM**  
Army executive agent for insensitive munitions

**AETC**  
Armaments Engineering and Technology Center

**AETE**  
Acquisition Education, Training, and Experience

**AIDE**  
Agile Integration and Demonstration

**AIM**  
acquisition information management

**AIMS**  
Armaments Information Management System

**AIS**  
Automated Information System

**AIT**  
automated identification technology

**AITAS**  
Army Training Requirements and Resources System Internet Training Applications System

**AITR**  
Army Information Technology Registry

**AKO**  
Army Knowledge Online

**AKSS**  
AT&L Knowledge Sharing System

**AL&T**  
acquisition, logistics, and technology

**AMA**  
analysis of materiel approaches

**AMB**  
Acquisition Management Branch

**AMC**  
Army Materiel Command

**AMCSS**  
Army military clothing sales store

**AMEDD**  
Army Medical Department

**AMP**  
Army Modernization Plan

**AMRD**  
Army modernization reference data

**AMSAA**  
Army Materiel Systems Analysis Agency

**AMSDL**  
acquisition management systems and data requirements control list

**ANSI**  
American National Standards Institute

**AO**  
action officer

**AoA**  
analysis of alternatives

**AOC**  
area of concentration

**AOP**  
allied ordnance publication

**AORB**  
Army organization requirements bin

**APB**  
acquisition program baseline

**APBI**  
advanced planning briefing for industry

**APC**  
Acquisition Position Category

**APMD**  
Acquisition Personnel Management Division

**APMS**  
Army Portfolio Management System

**APTUC**  
Army participating test unit coordinator

**APU**  
auxiliary power unit

**APUC**  
average procurement unit cost

**AQAP**  
allied quality assurance publication

**AR**  
Army regulation or Army Reserve

**ARACMIS**  
Army Reserve Acquisition Corps Management Information System

**ARCIC**  
Army Capabilities Integration Center

**ARDEC**  
Armament Research Development and Engineering Center

**ARL**  
Army Research Laboratory

**ARMP**  
Allied Reliability and Maintainability Publication

**ARNG**  
Army National Guard

**ARTPC**  
Army Research and Technology Protection Center



**ASA (ALT)/OASA (ALT)**

Assistant Secretary of the Army (Acquisition, Logistics and Technology)/Office of the ASA (ALT)

**ASA (FM&C)/OASA (FM&C)**

Assistant Secretary of the Army (Financial Management and Comptroller)/Office of the ASA (FM&C)

**ASA (I&E)**

Assistant Secretary of the Army (Installations and Environment)

**ASA (M&RA)**

Assistant Secretary of the Army (Manpower and Reserve Affairs)

**ASARC**

Army Systems Acquisition Review Council

**ASCC**

Army service component command

**ASD (NII)/OASD (NII)**

Assistant Secretary of Defense (Networks and Information Integration)/Office of the ASD (NII)

**ASE**

Army standardization executive

**ASIOE**

associated support items of equipment

**ASP**

Army Standardization Program

**ASR**

acquisition strategy report

**ASSIST**

Acquisition Streamlining and Standardization Information System

**ASTAG**

Army Science and Technology Advisory Group

**ASTM**

American Society for Testing and Materials

**ASTMP**

Army Science and Technology Master Plan

**ASTWG**

Army Science and Technology Working Group

**ATC**

Army Type Code

**ATD**

Advanced Technology Demonstration

**ATDMP**

Advanced Technology Demonstration Management Plan

**ATE**

automatic test equipment

**ATEC**

Army Test and Evaluation Command

**ATO**

Army Technology Objective

**ATO-D**

Army Technology Objective-Demonstration

**ATO–M**  
Army Technology Objective–Manufacturing Technology

**ATO–R**  
Army Technology Objective–Research

**ATRRS**  
Army Training Requirements and Resources System

**ATTLA**  
Air Transportability Test Loading Agency

**AUB**  
Army uniform board

**AUO&SC**  
Average Unit Operations and Sustainment Cost

**AWCF**  
Army working capital fund

**AWE**  
advanced warfighting experiment

**AWQI**  
Acquisition Workforce Qualification Initiative

**BA**  
budget activity

**BAA**  
broad agency announcement

**BCE**  
base-level commercial equipment

**BES**  
budget estimate submit

**BIR**  
benefit investment ratio

**BIT**  
built-in-test

**BOD**  
board of directors

**BOIP**  
basis of issue plan

**BOIPFD**  
basis of issue plan feeder data

**BPR**  
business process re-engineering

**BQ**  
best qualified

**BY**  
base year

**C3I**  
command, control, communications, and intelligence

**C3T**  
Command, Control and Communications–Tactical (PEO)

**C4**  
command, control, communications, and computers

**C4I**  
command, control, communications, computers, and intelligence

**CAB**  
cost analysis brief

**CAD**  
computer aided design

**CAIG**  
cost analysis improvement group

**CAIPT**  
Cost Analysis Integrated Product Team

**CAIV**  
cost as a independent variable

**CAM**  
computer aided manufacturing

**CAMP**  
Career Acquisition Management Portal

**CAP**  
critical acquisition position

**CAPPMIS**  
Career Acquisition Personnel Position Management Information System

**CAR**  
corrective action report

**CARD**  
cost analysis requirements description or catalog of required documents

**CARDS**  
Catalog of Approved Requirements Documentation System

**CARS**  
Consolidated Acquisition Reporting System

**CASCOM**  
Combined Arms Support Command

**CBA**  
capabilities-based assessment

**CBTDEV**  
combat developer

**cc**  
condition code

**CCA**  
component cost analysis or Clinger-Cohen Act

**CCB**  
configuration control board

**CCDR**  
contractor cost data reporting

**CDD**  
capability development document

**CDR**  
critical design review

**CDRL**  
contract data requirements list

**CE**  
continuous evaluation

**C-E LCMC**  
Communications–Electronics Life Cycle Management Command

**CFE**  
contractor furnished equipment

**CHRA**  
Civilian Human Resources Agency

**CI**  
configuration item or counterintelligence

**CICA**  
Competition in Contracting Act

**CID**  
commercial item description

**CIE**  
clothing and individual equipment

**CIF**  
central issue facility

**CIO**  
chief information officer

**CJCSI**  
Chairman of the Joint Chiefs of Staff Instruction

**CM**  
configuration management

**CMAG**  
Configuration Management Advisory Group

**CMI**  
classified military information or configuration management item

**CMIF**  
career management individual file

**CMO**  
configuration management officer

**CMP**  
configuration management plan

**CMRS**  
calibration and measurement requirements summary

**CNA**  
computer network attack

**CNAD**  
Conference of National Armaments Directors

**CNO**  
computer network operations

**COCOM**  
combatant command

**COD**  
cooperative opportunities document

**COE**  
Corps of Engineers

**COEI**  
component of end item

**COIC**  
critical operational issues and criteria

**CoN**  
certificate of networthiness

**CON**  
contingency (Type Classification)

**CONUS**  
continental United States

**CPC**  
corrosion prevention and control

**CPD**  
capability production document

**CPI**  
critical program information

**CPIPT**  
Cost Performance Integrated Product Team

**CPR**  
contract performance reports

**CPSS**  
cost-performance-schedule-sustainment

**CRA**  
clothing replacement allowance

**CRB**  
Cost Review Board

**CRBWG**  
Cost Review Board Working Group

**C-RDAP**  
Civilian Rotational Development Assignment Program

**CSL**  
central select list or command selection list

**CSO**  
Customer Support Office

**CT**  
critical technology

**CTA**  
common table of allowance

**CTE**  
critical technology element

**CTP**  
critical technical parameter

**CTR**  
continuous technology refreshment

**CTSF**  
Central Technical Support Facility

**CUI**  
controlled unclassified information

**DA**  
Department of the Army

**DA&E**  
Director, Assessment and Evaluation

**DAAC**  
Director, Army Acquisition Corps

**DAB**  
Defense Acquisition Board

**DAC**  
Defense Acquisition Challenge

**DACM**  
Director, Acquisition Career Management

**DAE**  
Defense Acquisition Executive

**DAES**  
Defense Acquisition Executive Summary

**DAG**  
Defense Acquisition Guidebook

**DALA**  
Defense Ammunition Logistics Activity

**DAMIR**  
Defense Acquisition Management Information Retrieval

**DAMO**  
data acquisition management officer

**DASA (APL)**  
Deputy Assistant Secretary of the Army (Acquisition Policy and Logistics)

**DASA (CE)**  
Deputy Assistance Secretary of the Army (Cost and Economics)

**DASA (DE&C)**  
Deputy Assistant Secretary of the Army (Defense Exports and Cooperation)

**DASA (ESOH)/ODASA (ESOH)**  
Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health)/Office of the DASA (ESOH)

**DASA (P)**  
Deputy Assistant Secretary of the Army for Procurement

**DASA (R&T)**  
Deputy Assistant Secretary of the Army for Research and Technology

**DASC**  
Department of the Army system coordinator

**DAU**  
Defense Acquisition University

**DAWDF**  
Defense Acquisition Workforce Development Fund

**DAWIA**  
Defense Acquisition Workforce Improvement Act

**DCD**  
Director of Combat Developments

**DCMA**  
Defense Contract Management Agency

**DCS**  
Deputy Chief of Staff

**DCS, G-2**  
Deputy Chief of Staff, G-2

**DCS, G-3/5/7**  
Deputy Chief of Staff, G-3/5/7

**DCS, G-4**  
Deputy Chief of Staff, G-4

**DCS, G-8**  
Deputy Chief of Staff, G-8

**DDACM**  
Deputy Director, Acquisition Career Management

**DDL**  
delegation of disclosure authority letter

**DENIX**  
Defense Environmental Network Information Exchange

**DFARS**  
Defense Federal Acquisition Regulation Supplement

**DIA**  
Defense Intelligence Agency

**DIACAP**  
DOD Information Assurance Certification and Accreditation Program

**DID**  
Data Item Description

**DIMSRR**  
Defense Intelligence Modeling and Simulation Resource Repository

**DISA**  
Defense Information Systems Agency

**DISR**  
Department of Defense Information Technology Standards Registry

**DITSCAP**  
DOD Information Technology Security Certification and Accreditation Process

**DLA**  
Defense Logistics Agency

**DMAG**  
Data Management Advisory Group

**DMSMS**

Diminishing Manufacturing Sources and Materiel Shortages

**DMWR**

depot maintenance work requirement

**DOD**

Department of Defense

**DODD**

Department of Defense Directive

**DODI**

Department of Defense Instruction

**DODIC**

Department of Defense Identification Code

**DODIPP**

Department of Defense Intelligence Production Program

**DODSSP**

Department of Defense single stock point

**DOT**

Department of Transportation

**DOT&E**

Director of Operational Test and Evaluation (OSD)

**DOTMLPF-P**

doctrine, organization, training, materiel, leadership and education, personnel, facilities and policy

**DPM**

Deputy Program/Project/Product Manager

**DRM**

Defense Acquisition Board readiness meeting

**DRMO**

Defense Reutilization Management Office

**DRPM**

Direct Reporting Program/Project/Product Manager

**DRU**

direct reporting unit

**DSCP**

Defense Supply Center-Philadelphia

**DSL**

document summary list

**DSP**

Defense Standardization Program

**DT**

developmental test

**DTIC**

Defense Technical Information Center

**DTO**

Defense Technology Objective

**DTP**

detailed test plan



**DTRR**

developmental test readiness review

**DTRS**

developmental test readiness statement

**DUSD (AS&C)**

Deputy Under Secretary of Defense (Advanced Systems and Concepts)

**DUSD (S&T)**

Deputy Under Secretary of Defense (Science and Technology)

**DWCF**

Defense Working Capital Fund

**E.O.**

executive order

**E3**

electromagnetic environmental effects

**EA**

Economic analysis

**ECC**

executive communications and control

**ECM**

electronic countermeasures

**ECP**

engineering change proposal

**ECU**

environmental control unit

**EDP**

event design plan

**EIS**

environmental impact statement

**EM**

electromagnetic

**EMC**

electromagnetic compatibility

**EMD**

engineering and manufacturing development

**EME**

expected electromagnetic environment

**EMI**

electromagnetic interference

**EMRH or EMRADHAZ**

electromagnetic radiation hazard

**EOD**

explosive ordnance disposal

**EPA**

Environmental Protection Agency

**EQLCCE**

environmental quality life cycle cost estimate

**ERP**  
enterprise resource planning

**ESD**  
electrostatic discharge

**ESEP**  
Engineer and Scientist Exchange Program

**ESO**  
Environmental Support Office

**ESOH**  
environment, safety and occupational health

**ET**  
embedded training

**ETM**  
electronic technical manual

**ETTC**  
Environmental Technology Technical Council

**EUC**  
end use certificate

**EUE**  
extended user evaluation

**EVMS**  
Earned Value Management System

**EW**  
electronic warfare

**EXSUM**  
executive summary

**FA**  
functional area

**FAA**  
functional area analysis

**FACA**  
Federal Advisory Committee Act

**FAR**  
Federal Acquisition Regulation

**FAT**  
first article test

**FC**  
functional chief

**FCR**  
functional chiefs representative

**FCT**  
foreign comparative testing

**FD**  
force development

**FDSC**  
failure definition and scoring criteria

**FDT/E**

Force Development Test or Experimentation

**FFRDC**

Federally-Funded Research and Development Center

**FIO**

foreign information officer

**FMECA**

failure modes, effects, and criticality analysis

**FMS**

foreign military sales

**FNA**

functional needs analysis

**FOA**

field operating agency

**FOC**

force operating capability or full operational capability

**FOIA**

Freedom of Information Act

**FOL**

fact of life

**FORSCOM**

Forces Command

**FOT&E**

follow-on operational test and evaluation

**FP**

functional proponent

**FRACAS**

Failure Reporting/Analysis and Corrective Action System

**FRP**

full rate production

**FSA**

functional solution analysis

**FUE**

first unit equipped

**FYDP**

Future Year Defense Program

**FYTP**

Five Year Test Program

**GFE**

Government Furnished Equipment

**GFS**

government furnished software

**GOTS**

government off the shelf

**GSA**

General Services Administration

**GSTW**  
Global Science and Technology Watch

**HAMS**  
hardness assurance, maintenance, and survivability

**HASMAT**  
Hazardous Material

**HBCU/MI**  
historically black colleges and universities/minority institutions

**HC**  
hazards classification

**HCSP**  
Human Capital Strategic Plan

**HEMP**  
high altitude electromagnetic pulse

**HFE**  
human factors engineering

**HHA**  
health hazard assessment

**HHAR**  
health hazard assessment report

**HMO**  
Heavy Metals Office

**HQ**  
headquarters

**HQDA**  
Headquarters, Department of the Army

**HRC**  
Human Resources Command

**HRED**  
Human Research and Engineering Directorate

**HSI**  
human systems integration

**HSIP**  
Human Systems Integration Plan

**HTS**  
Hazard Tracking System

**IA**  
international agreement or information assurance

**IAIC**  
intra-Army interoperability certification

**IAM**  
information assurance manager

**IANO**  
Information Assurance Network Office

**IAPM**  
information assurance program manager

**IASO**  
information assurance security officer

**IBSA**  
industrial base support agreement

**ICAF**  
Industrial College of the Armed Forces

**ICD**  
initial capabilities document

**ICE**  
independent cost estimate

**ICP**  
inventory control point

**ICRDA**  
International Cooperative Research, Development, and Acquisition

**ICS**  
interim contractor support

**ID**  
implementation directive

**ID/IQ**  
Indefinite Delivery/Indefinite Quantity

**IDE**  
integrated digital environment

**IDEAL**  
inspiring and developing excellence in acquisition leaders

**IDP**  
individual development plan

**IEEE**  
Institute of Electrical and Electronic Engineers

**IEP**  
information exchange program or independent evaluation plan

**IETM**  
interactive electronic technical manual

**IHHAR**  
initial health hazards assessment report

**IKPT**  
instructor and key personnel training

**ILS**  
integrated logistics support

**IM**  
item manager or insensitive munitions

**IMA**  
Installation Management Agency or independent medical assessor

**IMB**  
Insensitive Munitions Board

**IMMC**  
Integrated Materiel Management Center

**IMP**  
integrated master plan

**IMPRINT**  
Improved Performance Research Integration Tool

**IMS**  
integrated master schedule

**INSCOM**  
Intelligence and Security Command

**IOC**  
initial operational capability

**IOT**  
initial operational test

**IOTE**  
initial operational test and evaluation

**IP**  
intellectual property

**IPPD**  
Integrated Product and Process Development

**IPPM**  
Integrated Product and Process Management

**IPR**  
in-process review or intelligence production requirement

**IPT**  
integrated product team

**IPWG**  
International Programs Working Group

**ISA**  
independent safety assessment or international standardization agreement

**ISO**  
International Organization for Standardization

**ISP**  
information support plan

**IT**  
information technology

**ITAB**  
Information Technology Acquisition Board

**ITAR**  
International Traffic in Arms Regulation

**ITTS**  
instrumentation, targets, and threat simulators

**ITU**  
International Telecommunications Union

**IW**  
Information Warfare

**J&A**  
justification and authorization

**JCIDS**

Joint Capabilities Integration and Development System

**JCS**

Joint Chiefs of Staff

**JCTD**

Joint capability technology demonstration

**JCTDMP**

Joint capability technology demonstration management plan

**JIM**

Joint Interagency and Multinational

**JITC**

Joint Interoperability Test Command

**JOCOTAS**

Joint Committee On Tactical Shelters

**JPM**

Joint Program/Project/Product Manager

**JROC**

Joint Requirements Oversight Council

**JSIMTP**

Joint Services Insensitive Munitions Technical Panel

**JT&E**

joint test and evaluation

**JTA**

joint table of allowances

**KLP**

key leadership position

**KPP**

key performance parameter

**LCC**

logistics control code

**LCCE**

life cycle cost estimate

**LCM**

Life Cycle Management

**LCSEC**

Life Cycle Software Engineering Center

**LD**

logistics demonstration

**LE**

Lightning Effects

**LFT**

live fire test

**LFT&E**

live fire test and evaluation

**LIN**

line item number

**LMD**  
logistics maintenance demonstration

**LNO**  
liaison officer

**LOGSA**  
Logistics Support Activity

**LOTS**  
logistics-over-the-shore

**LP**  
limited procurement

**LRIP**  
low rate initial production

**LRP**  
low-rate production

**M&S**  
modeling and simulation

**MAIS**  
major automated information system

**MAPP**  
manpower and personnel plan

**MAR**  
Major Automated Information System Annual Report

**MATDEV**  
materiel developer

**MCCR**  
mission critical computer resource

**MDA**  
milestone decision authority

**MDAP**  
Major Defense Acquisition Program

**MDCITA**  
Multidiscipline Counterintelligence Threat Assessment

**MDR**  
milestone decision review

**ME**  
manpower estimate

**MECI**  
Mission Essential Contingency Item

**MER**  
Manpower Estimate Report

**MILCON**  
military construction

**MILDEP**  
Military Deputy

**MIPS**  
Modified Integrated Program Summary



**MOA**  
memorandum of agreement

**MOC**  
management of change

**MOE**  
measure of effectiveness

**MOI**  
memorandum of instruction

**MOP**  
measure of performance

**MOS**  
military occupational specialty

**MOT&E**  
multi-service operational test and evaluation

**MOU**  
memorandum of understanding

**MP**  
mission profile

**MRL**  
manufacturing readiness level

**MSA**  
materiel solution analysis

**MSC**  
major subordinate command

**MSIC**  
Missile and Space Intelligence Center

**MSO**  
materiel status office

**MSR**  
materiel status record

**MTOE**  
modified table of organization and equipment

**MVAP**  
Munition Vulnerability Assessment Panel

**MWO**  
modification work order

**NAAG**  
North Atlantic Treaty Organization Army Armaments Group

**NAIC**  
National Air Intelligence Center

**NATO**  
North Atlantic Treaty Organization

**NBC**  
nuclear, biological, and chemical

**NCO**  
noncommissioned officer

**NDAA**  
National Defense Authorization Act

**NDI**  
non-developmental item

**NEPA**  
National Environmental Policy Act

**NET**  
new equipment training

**NGB**  
National Guard Bureau

**NGIC**  
National Guard Intelligence Center

**NIIN**  
national item identification number

**NMP**  
National Maintenance Program

**NMUC**  
Nunn-McCurdy unit cost

**NMWR**  
National Maintenance Work Requirement

**NSA**  
National Security Agency

**NSC**  
Natick Soldier Center

**NSN**  
national stock number

**NSS**  
National Security System

**O&M**  
operations and maintenance

**O&S**  
operations and support/sustainment

**OBS**  
obsolete (Type Classification)

**OCIE**  
organizational clothing and individual equipment

**OCLL**  
Office of Congressional Liaison

**OCONUS**  
outside the continental United States

**OIPT**  
overarching integrated process/product team

**OMA**  
operations and maintenance, Army (Funding)

**OMS**  
Operational Mode Summary

**OPM**  
Office of Personnel Management

**OPTEMPO**  
operating tempo

**ORB**  
officer record brief

**OSBP**  
Office of Small Business Programs

**OSCR**  
operation support cost reduction

**OSD**  
Office of the Secretary of Defense

**OSHA**  
Occupational Safety and Health Administration

**OSMIS**  
Operating and Support Management Information System

**OT**  
operational test

**OTA**  
Operational Test Agency

**OTP**  
outline test plan

**OTRR**  
operational test readiness review

**OTRS**  
operational test readiness statement

**P(S)**  
probability of success

**PA**  
procurement appropriations or project agreement/arrangement/annex

**PA&E**  
Program Analysis and Evaluation

**PAUC**  
program acquisition unit cost

**PBA**  
performance based agreement

**PBBE**  
performance based business environment

**PBC**  
program budget committee

**PBL**  
performance based logistics

**PCO**  
procuring contracting officer

**PD**  
production and deployment

**PDR**  
program deviation report or program design review

**PDSS**  
post deployment software support

**PEO**  
program executive officer

**PEP**  
production engineering and planning

**PERSTEMPO**  
personnel tempo

**PESHE**  
programmatic environment, safety and occupational health evaluation

**PIA**  
privacy impact assessment

**PIR**  
post implementation review

**PM**  
program/project/product manager

**PM/AD**  
project manager/acquisition director

**PMO**  
program/project/product manager office

**PNO**  
program number

**POA&M**  
plan of action and milestone

**POC**  
point of contact

**POE**  
program office estimate

**PoF**  
physics of failure

**POM**  
program objective memorandum

**PPBE**  
planning, programming, budgeting, and execution

**PPP**  
program protection plan

**PQDR**  
product quality deficiency report

**PQT**  
production qualification test

**PR**  
program review

**PRR**  
production readiness review

**PSCOE**

power sources center of excellence

**PSI**

product support integrator or program security instruction

**PVAR**

program visibility analysis and reporting

**QA**

quality assurance

**QAP**

quality assurance provisions

**QPL**

qualified product list

**R&D**

research and development

**R&M**

reliability and maintainability

**R&T**

research and technology

**RAD**

request authority to develop

**RAM**

reliability, availability, and maintainability

**RB**

requirements board

**RC**

reserve component

**RCM**

reliability centered maintenance

**RD**

regional director

**RDA**

research, development, and acquisition

**RDEC**

Research, Development and Engineering Center

**RDECOM–ARDEC**

Research, Development and Engineering Command–Armament Research, Engineering and Development Center

**RDTE**

research, development, test, and evaluation

**REDCOM**

Research, Development and Engineering Command

**REF**

Rapid Equipping Force

**RFP**

request for proposal

**RPP**

reliability program plan

**RR**

rapid response

**S&T**

science and technology

**S/E**

systems and equipment

**SA**

system assessment

**SACO**

Staff Action Control Office

**SAE**

Society of American Engineers

**SAG**

Study Advisory Group

**SAO**

staff action officer

**SAOGC**

Secretary of the Army Office of General Counsel

**SAP**

Special Access Program

**SAR**

selected acquisition report or safety assessment report

**SBA**

Simulation Based Acquisition or Small Business Administration

**SBIR**

Small Business Innovative Research

**SCG**

security classification guide

**SCM**

security countermeasures

**SD**

Standardization Directive

**SDDC**

Surface Deployment and Distribution Command

**SDDCTEA**

Military Surface Deployment and Distribution Command Transportation Engineering Agency

**SEC**

Software Engineering Center

**SEP**

system evaluation plan or System/Soldier Enhancement Program/System Engineering Plan

**SER**

System Evaluation Report

**SES**

senior executive service

**SHDS**

safety and health data sheet

**SIO**  
senior intelligence officer

**SIP**  
system improvement program

**SIPRNET**  
secret internet protocol router network

**SIPT**  
supportability integrated product team

**SIR**  
savings-to-investment ratio

**SKO**  
Sets, Kits, and Outfits

**SLAD**  
Survivability and Lethality Analysis Directorate

**SLAMIS**  
Standard Study Number to Line Item Number Automated Management and Integrating System

**SLEP**  
Service Life Extension Program

**SLIN**  
standard line item number

**SMA**  
Supply Maintenance Army

**SMART**  
Simulation and Modeling for Acquisition, Requirements, and Training

**SMCA**  
Single Manager for Conventional Ammunition

**SMDC**  
Space and Missile Defense Command

**SME**  
subject matter expert

**SNR(A)**  
Senior National Representatives (Army)

**SOO**  
statement of objectives

**SOP**  
standing operating procedure

**SOR**  
source of repair

**SOSI**  
system of systems integration

**SOW**  
statement of work

**SPC**  
statistical process control

**SQT**  
software qualification test

**SRPE**  
senior rater potential evaluation

**SRR**  
sustainment readiness reviews

**SS**  
supportability strategy

**SSA**  
software support activity

**SSC**  
Senior Service College

**SSEB**  
source selection evaluation board

**SSF**  
single stock fund

**SSIPT**  
System Safety Integrated Process Team

**SSN**  
standard study number (Funding)

**SSOI**  
summary statement of intent

**SSP**  
source selection plan (contracting) or simulation support plan (modeling and simulation) or system support package (testing)

**SSRA**  
system safety risk assessment

**SSS**  
storage serviceability standards

**STANAG**  
Standardization Agreement (NATO)

**STAR**  
system threat assessment report

**STD**  
standard (Type Classification)

**STEM**  
Science and Technology Enterprise Management

**STEP**  
Simulation Test and Evaluation Process

**STRAP**  
system training plan

**STRI**  
simulation, training, and instrumentation

**STTE**  
special tools and test equipment

**STTR**  
Small Business Technology Transfer



**T&E**  
test and evaluation

**TA/CP**  
technology assessment and control plan

**TAA**  
total Army analysis

**TAADS**  
The Army Authorization Documents System

**TADSS**  
training aids, devices, simulators, and simulations

**TAIS**  
tactical automated information systems

**TAWG**  
Threat Accreditation Working Group

**TB**  
technical bulletin

**TC**  
type classification

**TCM**  
Training and Doctrine Command (TRADOC) capability manager

**TD**  
Technology Development

**TDA**  
table of distribution and allowances

**TDP**  
technical data package

**TDS**  
technology development strategy

**TEA**  
transportability engineering analysis

**TEMA**  
Test and Evaluation Management Agency

**TEMP**  
test and evaluation master plan

**TEP**  
test and evaluation program

**THA**  
threat hazards assessment

**TILO**  
technical and industrial liaison office

**TIP**  
technology information paper

**TIR**  
Test Incident Report

**TISO**  
threat integration staff officer

**TLCSM**  
total life cycle system management

**TM**  
technical manual

**TMA**  
technology maturity assessment

**TMDE**  
test, measurement, and diagnostic equipment

**TNGDEV**  
training developer

**TOC**  
total ownership cost

**TOE**  
table of organization and equipment

**TOL**  
technology information papers-on-line

**TPF**  
total package fielding

**TPP**  
technology protection plan

**TR**  
transportability report or test report

**TRA**  
technology readiness assessment

**TRAC**  
Training and Doctrine Command (TRADOC) Analysis Center

**TRADOC**  
Training and Doctrine Command

**TRL**  
technology readiness level

**TRR**  
test readiness review

**TSAR**  
threat system accreditation report

**TSARC**  
test schedule and review committee

**TSG**  
threat steering group

**TSG/OTSG**  
The Surgeon General/Office of the TSG

**TSMO**  
Threat Systems Management Officer

**TSP**  
test support package

**TTA**  
technology transition agreement

**TTCP**  
The Technical Cooperation Program

**TV**  
technical view

**TWI**  
Training with Industry

**TY**  
then year

**UADDE**  
Universal Acquisition Data Display and Entry

**UAS**  
unmanned aircraft system

**UC**  
unit cost

**UCR**  
unit cost report

**UIC**  
unit identification code

**UN**  
United Nations

**UP**  
unsolicited proposal

**UPERC**  
unsolicited proposal evaluation review committee

**URL**  
uniform resource locator

**USAASC**  
U.S. Army Acquisition Support Center

**USACHPPM**  
U.S. Army Center for Health Promotion and Preventive Medicine

**USACRC**  
U.S. Army Combat Readiness Center

**USAEC**  
U.S. Army Environmental Center

**USAFMSA**  
U.S. Army Force Management Support Agency

**USAMRMC**  
U.S. Army Medical Research and Materiel Command

**USANCA**  
U.S. Army Nuclear and Chemical Agency

**USATA**  
U.S. Army Test, Measurement, and Diagnostic Equipment Activity

**USATEC**  
U.S. Army Test and Evaluation Command

**USC**  
United States Code

**USD (AT&L)**

Under Secretary of Defense (Acquisition, Technology and Logistics)

**USD (P&R)**

Under Secretary of Defense (Personnel and Readiness)

**USG**

U.S. Government

**USPFO**

U.S. Property and Fiscal Office

**UXO**

unexploded ordnance

**VAMOSOC**

visibility and management of operating and support cost

**VCJCS**

Vice Chairman of the Joint Chiefs of Staff

**VCSA**

Vice Chief of Staff of the Army

**VE**

Value engineering

**VECP**

value engineering change proposal

**VEI**

value engineering incentive

**VEM**

value engineering manager

**VEPR**

value engineering program requirement

**VIS**

Virtual InSight (product name)

**VV&A**

verification, validation, and accreditation

**WBS**

work breakdown structure

**WIPT**

working-level integrated product team

**WIPTL**

working-level integrated product team lead

**WTC**

warfighter technical council

**YG**

year group

**ZLIN**

development line item number

**3IA**

International, Interagency, Industry and Academia

## **Section II**

### **Terms**

#### **Acquisition phase**

All the tasks and activities needed to bring the program to the next major milestone occur during an acquisition phase. Phases provide a logical means of progressively translating broadly stated mission needs into well-defined system-specific requirements and ultimately into operationally effective, suitable, and survivable systems. An example of an acquisition phase is engineering and manufacturing development (EMD).

#### **Acquisition program**

A directed, funded effort that provides a new, improved, or continuing materiel, weapon or information system or service capability in response to an approved need. Acquisition programs are divided into different categories that are established to facilitate decentralized decision-making, execution, and compliance with statutory requirements.

#### **Advance procurement (long lead items)**

A pre-approved exception to the full funding policy that allows procurement of long lead-time components, material, parts, and effort in a fiscal year before that in which the related end item is to be procured. Authority provided in an appropriations act to obligate and disburse during a fiscal year before that in which the related end item is procured. The funds are added to the budget authority for the fiscal year and deducted from the budget authority of the succeeding fiscal year. Used in major acquisition programs for advance procurement of components whose long lead time require purchase early in order to reduce the overall procurement lead-time of the major end item. Advance procurement of long lead components is an exception to the DOD “full funding” policy and must be part of the President’s budget request.

#### **Aerospace vehicle**

Collective term for military aircraft, rockets, guided missiles, boosters, satellites, probes, airborne lasers, unmanned aircraft systems (UASs), and UAS control segments used to launch, control, and recover UASs.

#### **Affordability**

The degree to which the life cycle cost of an acquisition program is in consonance with the long-range investment and force structure plans of the Department of Defense or individual DOD Components. Affordability procedures establish the basis for fostering greater program stability through the assessment of program affordability and the determination of affordability constraints.

#### **Army acquisition objective**

The quantity of an item of equipment or ammunition required to equip the U.S. Army approved force and to sustain that force, together with specified allies, in wartime from D-Day through the period prescribed and at the support level directed in the latest Office of the Secretary of the Defense Consolidated Guidance.

#### **Automated cost estimating integrated tools**

The standard Army automated framework/spreadsheet designed to increase the productivity of cost analysis work. Automatic cost estimating integrated tools (ACEIT) automates the detailed, tedious costing functions allowing the analyst more time to concentrate on the methodology and perform analysis; provides automated assistance in developing documentation of the estimate; and supplies the latest inflation indices for all services and other government agencies (for example, each year updated inflation indices are distributed throughout the Army via each ACEITs local point of contact).

#### **Automated information system (AIS) program**

An acquisition program that acquires IT, except IT that involves equipment that is an integral part of a weapon or weapons system, or is an acquisition of services program. (DODI 5000.02)

#### **Automatic cost estimating integrated tools system**

This system includes the Cost Estimating Module-ACE.

#### **Clothing and individual equipment (CIE)**

A collective term that includes personal clothing, optional clothing, organizational clothing, and individual equipment that is not an integral part of the design and operation of major equipment.

#### **Clothing bag**

All Army uniforms and accessories contained in the initial issue clothing allowance contained in Common Table of Allowance (CTA) 50–900 for enlisted Soldiers. Clothing bag items are furnished to enlisted members entitled to an initial issue of clothing in accordance with AR 700–84.

**Commercial item**

A commercial item is any item, other than real property, that is of a type customarily used for nongovernmental purposes and that has been sold, leased, or licensed to the general public; or has been offered for sale, lease, or license to the general public; or any item evolved through advances in technology or performance and that is not yet available in the commercial marketplace, but will be available in the commercial marketplace in time to satisfy the delivery requirements under a government solicitation. Also included in this definition are services in support of a commercial item, of a type offered and sold competitively in substantial quantities in the commercial marketplace based on established catalog or market prices for specific tasks performed under standard commercial terms and conditions; this does not include services that are sold based on hourly rates without an established catalog or market price for a specified service performed. (DAU Glossary of Acquisition Terms. See also FAR Part 2.101.)

**Critical program information (CPI)**

Information, technologies, or systems that, if compromised, would degrade the combat effectiveness, shorten the expected combat-effective life of the system, or significantly alter the program direction. This includes classified military information or unclassified controlled information about such programs, technologies, or systems. The CPI is finite, definable and is limited as possible.

**Critical technology element (CTE)**

A technology element is critical if the system being acquired depends on this technology element to meet capability thresholds (with acceptable development cost and schedule and with acceptable production and operation costs) and if the technology element or its application is either new or novel.

**Defense research facility**

DOD facility which performs or contracts for the performance of (A) basic research; or (B) applied research known as exploratory development.

**Electromagnetic compatibility (EMC)**

The ability of systems, equipment, and devices that utilize the electromagnetic spectrum to operate in their intended operational environments without suffering unacceptable degradation, or causing unintentional degradation because of electromagnetic radiation or response. It involves the application of sound electromagnetic spectrum management, system, equipment and device design configuration that ensures interference-free operation; and clear concepts and doctrines that maximize operational effectiveness.

**Electromagnetic environmental effects (E3)**

The impact of the electromagnetic environment upon the operational capability of military forces, equipment, systems, and platforms. It encompasses all electromagnetic disciplines, including electromagnetic compatibility/interference; electromagnetic vulnerability; electromagnetic pulse; hazards of electromagnetic radiation to personnel, ordnance, and volatile materials; and natural phenomena effects of lightning and p-static.

**Electromagnetic interference (EMI)**

Any disturbance interrupting, obstructing, or otherwise degrading or limiting the effective performance of electronics or electrical equipment. It can be induced intentionally, as in EW, or unintentionally, through spurious emissions/responses, intermodulation products, or the like. (Joint Pub 1-02)

**Electromagnetic spectrum**

The range of frequencies of electromagnetic radiation from zero to infinity. (Joint Pub 1-02)

**Electronic warfare (EW)**

Any military action involving the use of electromagnetic energy or directed energy to control the electromagnetic spectrum or to attack the enemy. (Joint Pub 1-02)

**Embedded diagnostics**

A capability that accomplishes self-diagnosis using on-board resources as an integrated system (in other words, sensors, analytical software and embedded devices); collects, correlates and synthesizes systems performance data to provide a system level health assessment via on-board processing.

**Embedded instrumentation**

Data collection and processing capabilities, integrated into the design of a system for one or more of the following uses: diagnostics, prognostics, testing and training.

**Embedded prognostics**

A further refinement of embedded diagnostics to address system condition, support failure prediction and enable anticipatory logistics by use of software algorithms. Prognostic capabilities identify impending failures and provide appropriate actionable logistics support direction.

**Embedded training (ET)**

The ET is a functional capability hosted in hardware and/or software, integrated into the overall equipment configuration. ET supports training, assessment, and control of exercises on the operational equipment with auxiliary equipment and data sources as necessary.

**Frequency assignment**

Authorization to use a specific frequency under specified conditions.

**Full operational capability (FOC)**

The full attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics, which is manned and operated by a trained, equipped, and supported military unit or force. (DAU Glossary of Acquisition Terms.) A program's CDD/CPD defines what actually constitutes FOC and when it should be attained.

**Government furnished software (GFS)**

A Government furnished item in the form of software (computer programs, data definitions, and/or populated databases, as appropriate) and frequently with related user and support documentation/information. GFS is a form of software reuse; GFS software may originate from various sources, such as development from another project, government-developed software, and is now owned by the Government. However, commercial off-the shelf-(COTS) Software, even if provided by the Government or another acquirer, is not categorized as GFS, and is usually categorized as COTS software because of its essential "Commercial" nature/source and vendor support and updates. ("GOTS" software; government off-the shelf software, is a term that is loosely defined and used, but sometimes is meant to be equivalent to GFS.)

**Health hazards**

Conditions that create significant risks of death, injury, or acute chronic illness, disability, and/or reduced job performance of personnel who produce, test, operate, maintain, or support the system.

**Initial operational capability (IOC)**

The first attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics that is manned or operated by an adequately trained, equipped, and supported military unit or force. (Joint Pub 1-02) Information on a program's IOC is defined in the capability development document (CDD) and the capability production document (CPD).

**Joint program**

Any acquisition system, subsystem, component, or technology program that involves a strategy that includes funding by more than one DOD Component during any phase of a system's life cycle.

**Key performance parameter (KPP)**

Those minimum attributes or characteristics considered most essential for an effective military capability. KPPs are validated by the JROC for JROC Interest documents, and by the DOD Component for Joint Integration or Independent documents. CDD and CPD KPPs are included verbatim in the APB. (CJCS 3170-series.)

**Low rate initial production (LRIP)**

The first effort of the Production and Deployment (P&D) phase. The purpose of this effort is to establish an initial production base for the system, permit an orderly ramp-up sufficient to lead to a smooth transition to full rate production (FRP), and to provide production representative articles for initial operational test and evaluation (IOT&E) and full-up live fire testing. This effort concludes with a Full Rate Production Decision Review to authorize Full Rate Production and Deployment. The minimum number of systems (other than ships and satellites) to provide production representative articles for operational test and evaluation, to establish an initial production base, and to permit an orderly increase in the production rate sufficient to lead to FRP upon successful completion of operational testing (OT). For Major Defense Acquisition Programs (MDAPs), LRIP quantities in excess of 10 percent of the acquisition objective must be reported in the selected acquisition report (SAR). For ships and satellites LRIP is the minimum quantity and rate that preserves mobilization. (DAU Glossary of Acquisition Terms.)

**Major automated information system (MAIS) acquisition program**

An AIS acquisition program that is (1) designated by ASD (NII) as a MAIS, or (2) estimated to require program costs in any single year in excess of \$32 million in fiscal year (FY) 2000 constant dollars, total program costs in excess of

\$126 million in FY 2000 constant dollars, or total life cycle costs in excess of \$378 million in FY 2000 constant dollars. MAISs do not include highly sensitive classified programs (as determined by the Secretary of Defense). For the purpose of determining whether an AIS is a MAIS, the following will be aggregated and considered a single AIS: (1) the separate AISs that constitute a multi-element program; (2) the separate AISs that make up an evolutionary or incrementally developed program; or (3) the separate AISs that make up an a multi-component AIS program.

**Major defense acquisition program (MDAP)**

An acquisition program that is not a highly sensitive classified program (as determined by the Secretary of Defense) and that is: (1) designated by the Under Secretary of Defense (Acquisition, Technology and Logistics) (USD (AT&L)) as an MDAP, or (2) estimated by the USD (AT&L) to require an eventual total expenditure for research, development, test and evaluation of more than \$365 million in fiscal year (FY) 2000 constant dollars or, for procurement, of more than \$2.190 billion in FY 2000 constant dollars.

**Major milestone**

A major milestone is the decision point that separates the phases of an acquisition program. Milestones include, for example, the decisions to authorize entry into the EMD phase.

**Major system**

A combination of elements that will function together to produce the capabilities required to fulfill a mission need, including hardware, equipment, software, or any combination thereof, but excluding construction or other improvements to real property. A system will be considered a major system if it is estimated by the USD (AT&L) to require an eventual total expenditure for RDT&E of more than \$140 million in FY 2000 constant dollars, or for procurement of more than \$660 million in FY 2000 constant dollars, or if designated as major by the DOD Component Head.

**Milestone decision authority (MDA)**

The individual designated in accordance with criteria established by the USD (AT&L).

**Mission critical**

A system whose operational effectiveness and operational suitability are essential to the successful completion/outcome of the current or subsequent combat action. The loss of the system could result in an unfavorable outcome of the combat action. Soldiers who perform their primary or secondary functions on the battlefield use the system. Army Unit Status Reporting identifies such as system with Equipment Readiness Code P or A in the capabilities document of one or more type units.

**Modified commercial item**

Any item with modifications of a type customarily available in the commercial marketplace or minor modifications of a type not customarily available in the commercial marketplace made to meet Federal Government requirements. Such modifications are considered minor if the change does not significantly alter the non-Governmental function or essential physical characteristics of an item or component, change the purpose of the process. Factors to be considered in determining whether a modification is minor include the value and size of the modification and the comparative value and size of the final product. Dollar values and percentages may be used as guideposts, but are not conclusive evidence that a modification is minor.

**Non-developmental item (NDI)**

A NDI is any previously developed item of supply used exclusively for government purposes by a Federal Agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement; any item described above that requires only minor modifications or modifications of the type customarily available in the commercial marketplace in order to meet the requirements of the processing department or agency. (DAU Glossary of Acquisition Terms. See also FAR Part 2.101.)

**Objective**

The desired operational goal associated with a performance attribute, beyond which any gain in utility does not warrant additional expenditure. The objective value is an operationally significant increment above the threshold. An objective value may be the same as the threshold when an operationally significant increment above the threshold is not significant or useful.

**Organizational clothing and individual equipment (OCIE)**

Clothing and equipment expressly developed for military personnel use in the field during combat or training. Within prescribed limits these items may also be used in garrison. These items are normally worn or carried by an individual Soldier to support mission performance, and do not include items that are part of a larger or separate system. These items are issued to Soldiers on a loan basis under common table of allowances (CTA 50-900, CTA 50-909, CTA 50-970) and



remain the property of the organization. These items include, but are not restricted to, cold weather clothing; combat vehicle crewman; aircrew; desert; nuclear, biological, and chemical (NBC) protective suits; footwear; gloves; both medical and food service duty white uniforms; field packs and other load bearing equipment; canteens; helmets; individual cooling vests; and protective eyewear.

### **Risk management**

The process of selecting and implementing countermeasures to achieve an acceptable level of risk at an acceptable cost. Risk management encompasses identification, mitigation, and continuous tracking and control procedures that feedback through the program assessment process to decision authorities.

### **Spectrum management**

Planning, coordinating, and managing joint use of the electromagnetic spectrum through operational, engineering, and administrative procedures, with the objective of enabling electronic systems to perform their functions in the intended environment without causing or suffering unacceptable interference.

### **SSN–LIN Automated Management and Integrating System (SLAMIS)**

The HQDA SLAMIS website is a data mart that provides Armywide users easy access to key “Chain-of-Custody” data relationships over the entire life cycle of major items of equipment. The data mart interfaces and synchronizes update of corrected data to no less than seven Army data bases. The data mart provides customers the means to request standard study numbers, developmental LINs, SSN–LIN linkages, type classification processing, catalog of required documents (CARD) number reference, TC tracking, HQDA FD–LIN List download and processing, and resolution of data integrity issues. Users are also able to accomplishing common table of allowance (CTA), Substitute LIN, TC Exemption, and LIN Retirement processing.

### **System of systems (SoS)**

A set or arrangement of interdependent systems that are related or connected to provide a given capability. The loss of any part of the system will significantly degrade the performance or capabilities of the whole. The development of a SoS solution will involve trade space between the systems as well as within an individual system performance. An example of a SoS would be a combat aircraft. While the aircraft may be developed as a single system, it could incorporate subsystems developed for other aircraft. For example, the radar from an existing aircraft may be incorporated into the one being developed rather than developing a new radar. The SoS in this case would be the airframe, engines, radar, avionics, and so on that make up the entire combat aircraft capability. (CJCSI 3170.01 series)

### **System training plan (STRAP)**

A training proponent-developed master planning document that addresses training required to introduce a new item of materiel into the force. STRAP integrates the Training Support System and introduces training and training support requirements needed for the institutional, operational and self-development domains. The STRAP is a required TRADOC annex that accompanies the CDD and CPD during approval processing. STRAP is an extension of training and training support information identified within the appropriate capabilities document.

### **Telecommunications**

Any transmission, emission, or reception of signs, signals, writings, images, sounds, or information of any nature by wire, radio, visual, or other electromagnetic systems. (Joint Pub 1–02)

### **Threat representation**

Models, simulators, stimulators, simulations, data, targets, actual threat systems, emulators, surrogates, foreign materiel, or systems that replicate foreign military weapon systems or civilian devices used in an adversarial military role. Validation and accreditation is required for threat representations that support formal program analysis, assessment, or test and evaluation. Procedures for validation and accreditation are established in DA Pam 5–11 (for M&S) and DA Pam 73–1 (for T&E).

### **Threshold**

A minimum acceptable operational value below which the utility of the system becomes questionable. (CJCSI 3170 series)

### **Training aids devices simulators, and simulations (TADSS)**

TADSS are developed and acquired to support training at the unit and/or Combat Training Centers and within the institutional training base. TADSS are categorized as either system or non-system. System TADSS are designed for use with a system, family of systems or item of equipment, including subassemblies and components. They may be standalone, embedded, or appended. Non-system TADSS are designed to support general military training and non-system specific training requirements.



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