

# Integrated Defense Acquisition, Technology, and Logistics Life Cycle Management System

**1. INTRODUCTION.** The Integrated Defense Acquisition, Technology, and Logistics Life Cycle Management System Chart is a training aid for Defense Acquisition University (DAU) courses. It serves as a pictorial roadmap of key activities in the systems acquisition processes. The chart illustrates the interaction of the three-key processes that must work in concert to deliver the capabilities required by the warfighters: the requirements process (Joint Capabilities Integration & Development System [JCIDS]); the acquisition process (Defense Acquisition System); and program and budget development (Planning, Programming, Budgeting, and Execution [PPBE] process). These three major decision support systems are illustrated in the top left front of this chart. This chart is based on policies and guidance from the following federal and Department of Defense (DoD) documents and Web sites:

- **DoD Directive 5000.01.** *The Defense Acquisition System*, May 12, 2003
- **DoD Instruction 5000.02.** *Operation of the Defense Acquisition System*, Dec. 8, 2008
- **Defense Acquisition Guidebook (DAG).** <https://dag.dau.mil>
- **JCIS Instruction 3170.01G.** *Joint Capabilities Integration and Development System*, Mar 1, 2009
- **JCIDS Manual** *Operation of the Joint Capabilities Integration and Development System*, July 31, 2009
- **JCIS Instruction 6212.01E.** *Interoperability of Information Technology and National Security Systems*, Dec. 15, 2008
- The following Internet sites provide additional information:
  - **Acquisition Community Connection (ACC).** <https://acc.dau.mil>. ACC provides information on acquisition, technology, and logistics processes. ACC has links to acquisition-related communities of practice, other special interest areas, and to the DAU Continuous Learning Center.
  - **DAU Continuous Learning Center (CLC).** <http://clc.dau.mil>. The CLC provides access to lessons for professional development and current information on new initiatives.
  - **Defense Acquisition Portal,** <https://dap.dau.mil>. One-stop source for acquisition information and tools
- **Directive-Type Memorandum (DTM) 09-027 - Implementation of the Weapon Systems Acquisition Reform Act of 2009.**
- **Federal Acquisition Regulation (FAR), Defense Federal Acquisition Regulation Supplement (DFARS), and Procedures, Guidance, and Information (PGI).** <http://www.acq.osd.mil/dpap/>

**2. ACQUISITION PROCESS.** The acquisition process is structured by DoDI 5000.02 into discrete phases separated by major decision points (called milestones or decision reviews) with a number of key activities to provide the basis for comprehensive management and informed decision making. The number of phases and decision points are tailored to meet the specific needs of individual programs. This is called the “Integrated Defense Acquisition, Technology, and Logistics Life Cycle Management System” and is illustrated on the front of this chart.

The acquisition process begins with the identification of a capability need that requires a materiel solution. The process encompasses the activities of design, fabrication, test, manufacture, operations, and support. It may involve modifications, and it ends with disposal/recycling/demilitarization. Major

**Figure 1. Requirements for Milestone/Decision Reviews**  
(See enclosure 4, DoDI 5000.02)

Requirement	Milestone/Decision Point					
	MDD	A	B	P-CDRA	C	FRP
Acquisition Decision Memorandum <sup>5</sup>	X	X	X	X	X	X
Acquisition Program Baseline <sup>5</sup>			X		X	X
Acquisition Strategy <sup>5</sup> (see Figure 2)			X		X	X
Acquisition Information Assurance Strategy (all IT incl NSS)		X	X		X	X
Affordability Assessment			X		X	
Alternate Live Fire T&E Plan (pgms w/waiver from full-up LFT&E) <sup>2</sup>			X			
Analysis of Alternatives (AoA) <sup>3&amp;5</sup>		X	X		X	X
AoA Study Guidance	X					
Benefit Analysis & Determination <sup>1&amp;8</sup> (bundled acquisitions)			X			
Beyond LRIP Report <sup>2</sup> (include MDAPs that are also MAIS)						X
Capability Development Document (CDD) <sup>5</sup>			X			
Capability Production Document (CPD)					X	
Clinger-Cohen Act (CCA) Compliance <sup>5</sup>		X	X		X	X
Competition Analysis <sup>1&amp;8</sup> (depot-level maintenance rule)			X			
Component CIO Confirmation of CCA Compliance		X	X		X	X
Component Cost Estimate <sup>5&amp;9</sup> (MAIS; optional MDAP)		X	X			X
Consideration of Technology Issues (MDAP & MAIS)		X	X		X	
Cooperative Opportunities <sup>1</sup>		X	X		X	
Core Logistics/Source of Repair Analysis <sup>1&amp;8</sup>			X		X	
Corrosion Prevention Control Plan <sup>1</sup>			X		X	
Cost Analysis Requirements Description <sup>5&amp;9</sup> (MDAP & MAIS)			X		X	X
Data Management Strategy <sup>1</sup> (MDAP, MAIS & ACAT II)		X	X		X	X
DoD CIO Confirmation of CCA Compliance (MDAP & MAIS)		X	X		X	X
Economic Analysis (MAIS) <sup>7</sup> (may be combined w/AoA at MS-A)		X	X		X	X
Exit Criteria <sup>5</sup>		X	X		X	X
Industrial Base Capabilities <sup>1</sup> (MDAPs only)			X		X	
Independent Cost Estimate (ICE) <sup>5&amp;10</sup> (MDAPs only)		X	X		X	X
Independent Technology Readiness Assessment <sup>11</sup>			X		X	
Information Support Plan <sup>1&amp;5</sup>				X	X	
Initial Capabilities Document (ICD) <sup>4&amp;5</sup>	X	X	X		X	
Initial Operational Test & Evaluation Completed (ACAT I & II)						X
Item Unique Identification (IUID) Plan (part of SEP)		X	X		X	
Joint Interoperability Test Certification (IT & NSS)						X
Life Cycle Signature Support Plan <sup>5</sup>		X	X		X	
Life Cycle Sustainment Plan <sup>1</sup>			X		X	X
Live Fire T&E Waiver <sup>2</sup> (covered systems) (n/a MAIS)			X			
Live Fire T&E Report <sup>2</sup> (covered systems) (n/a MAIS)						X
LRIP Quantities MDAP & ACAT II (n/a AIS)			X			
Manpower Estimate (MDAPS only) <sup>5</sup>			X		X	X
Market Research <sup>1</sup>		X	X			
Milestone Decision Authority (MDA) Certification (MDAPs only) <sup>4</sup>		X	X		X	
MDA assessment of chem, bio, rad, and nuc survivability			X		X	
Military Equipment Validation <sup>1</sup>					X	X
Net-Centric Data Strategy <sup>5&amp;12</sup>		X	X		X	
Operational Test Agency Report of OT&E Results			X		X	X
Preliminary Design Review (PDR) Report, (if PDR after MS B) <sup>15</sup>			X			
Post-Critical Design Review (CDR) Report					X	
Post Implementation Review						X
Program Protection Plan (PPP) <sup>1</sup>		X	X		X	
Pgm Environ, Safety & Occup Health Evaluation (PESHE) <sup>5</sup>			X		X	X
Replaced System Sustainment Plan <sup>5</sup> (MDAPs only)			X			
Selected Acquisition Report (SAR) <sup>4&amp;13</sup>						
Spectrum Supportability Determination <sup>8</sup>			X		X	
System Threat Assessment (STA) (ACAT II) <sup>5&amp;14</sup>			X		X	
System Threat Assessment Report (STAR) (ACAT I) <sup>5&amp;6</sup>			X		X	
Systems Engineering Plan (SEP)		X	X		X	
Technology Development Strategy			X		X	
Technology Readiness Assessment (TRA) <sup>5</sup>			X		X	
Test & Evaluation Master Plan (TEMP)			X		X	X
Test & Evaluation Strategy (TES)		X				

1. Part of TDS or Acquisition Strategy
2. OSD T&E Oversight Programs
3. MDAP: A, B, C; MAIS: A, B, FRP
4. Milestone C if Program Initiation
5. Program Initiation for Ships
6. Validated by DIA for ACAT ID; AIS use DIA validated capstone info/ops Threat Assessment Decision
7. Milestone C if equivalent to FRP
8. Milestone C if no Milestone B
9. MAIS whenever an economic analysis is required
10. May be CAIG Assessment at Milestone A
11. ACAT ID only if required by DDR&E
12. Summarized in TDS; details in ISP
13. SAR at program initiation; annually thereafter
14. Validated by Component; AIS use DIA validated capstone info/ops Threat Assessment Decision
15. If PDR conducted after MS B, the MDA conducts a Post-PDR Assessment

## Acronym List

BES	Budget Estimate Submission	IOC	Initial Operational Capability
DAES	Defense Acquisition Executive Summary	IOT&E	Initial Operational Test and Evaluation
DCMA	Defense Contract Management Agency	OASD(NII)	Office of the Assistant Secretary of Defense for Networks and Information Integration
DISA	Defense Information Systems Agency	PPBE	Planning, Programming, Budgeting, and Execution
DOT&E	Director, Operational Test and Evaluation	P-CDRA	Post-Critical Design Review Assessment
DOTMLPF	Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities	POM	Program Objectives Memorandum
EVMS	Earned Value Management System	R&D	Research and Development
FOT&E	Follow-On Operational Test and Evaluation	T&E	Test and Evaluation
JCIDS	Joint Capabilities Integration and Development System		
JITC	Joint Interoperability Test Command		

## Figure 2. Acquisition Strategy

(Defense Acquisition Guidebook, Chapter 2)

- Acquisition Approach
  - Open System Approach
  - Tailoring
- Source & Related Documents
- Capability Needs
- Top-Level Integrated Schedule
  - EMD Top-Level Schedule
  - MS C & FRP Top-Level Schedule
- Program Interdependency & Interoperability Summary
- International Cooperation
- Risk & Risk Management
- Technology Maturation
- Industrial Capability & Manufacturing Readiness
  - Industrial Capability
  - Elevating Industrial Capability Issues
  - Industrial & Manufacturing Readiness
  - Sustaining Industrial Capabilities
- Business Strategy
  - Small Business & Small Business Innovation Research
    - ◆ Subcontracting Plan/Small Business Participation
    - ◆ Performance Measurement
    - ◆ Small Business Innovation Research Considerations
  - Contract Approach
    - ◆ Performance-Based Business Strategy
    - ◆ Modular Contracting
    - ◆ Contracting Bundling or Consolidation
    - ◆ Major Contract(s) Planned
    - ◆ Multi-Year Contracting
    - ◆ Contract Incentives
    - ◆ Warranties
    - ◆ Leasing
  - Market Research
  - Competition
- Resource Management
  - PM Office Staffing & Support Contractors
  - Cost & Funding
  - Cost Control & CAIV Plan
  - Earned Value Management
  - Advanced Procurement
- Program Security Considerations
  - Information Assurance
  - Critical Program Information & Program Protection Plan Summary
  - Anti-Tamper Measures
- Test & Evaluation
- Data Management
  - Data Management & Technical Data Rights
  - Integrated Data Management
- Life-Cycle Sustainment Planning
- Life-Cycle Signature Support Plan
- Chemical, Biological, Radiological and Nuclear Survivability
- Human Resources Integration
- Environment, Safety and Occupational Health
- Military Equipment Valuation & Accountability
  - Proper Financial Accounting Treatment for Military Equipment
  - Accounting Review
- Corrosion Prevention & Control

upgrade or modification programs may also follow the acquisition life cycle process.

The policies and principles that govern the operation of the defense acquisition system are divided into five major categories as stated in DoDD 5000.01: 1.) Flexibility—tailoring program strategies and oversight; 2.) Responsiveness—rapid integration of advanced technologies through evolutionary acquisition; 3.) Innovation—adoption of practices that reduce cost and cycle time; 4.) Discipline—use of program baseline parameters as control objectives; and 5.) Effective management—decentralization to the extent practicable. DoD components first try to satisfy capability needs through non-materiel solutions such as changes in doctrine or tactics. If existing U.S. military systems or other on-hand materiel cannot be economically used or modified to meet the warfighter's need, a materiel solution may be pursued according to the following hierarchy of alternatives:

- Procurement (including modification) of commercially available domestic or international technologies, systems or equipment, or allied systems or equipment
- Additional production or modification of previously developed U.S. and/or allied military systems or equipment
- Cooperative development program with one or more allied nations
- New joint, DoD component, or government agency development program
- New DoD component-unique development program.

A list of program information requirements to ensure informed decision making is found in DoDI 5000.02, enclosure 4. The Milestone Decision Author-

ity may tailor this information based on program needs, but normally may not omit documents required by statute or mandatory policy without a waiver (e.g., acquisition program baseline or initial capabilities document). Figure 1 is a simplified chart of information required at milestones and other decision reviews.

### Other periodic reports:

**Defense Acquisition Executive Summary (DAES) Report.** ACAT I and IAM programs.

Quarterly. Also upon Program Objectives Memorandum (POM) and Budget Estimate Submission (BES). For ACAT I only—upon UCR breach.

**Selected Acquisition Report (SAR). ACAT I only.** Submitted at program initiation for ships, Milestone B, and annually thereafter. Quarterly SARs may be required on an exception basis (see Defense Acquisition Guidebook, Chapter 10).

**Unit Cost Report (UCR).** ACAT I only. Quarterly as part of the DAES Report.

**Electronic Warfare (EW) Test and Evaluation Report.** Annually for all EW programs on the OSD T&E oversight list.

**Earned Value Management System (EVMS) Reports.** See DoDI 5000.02, Table 5, ANS/EIA 748 and the *Defense Acquisition Guidebook* (DAG).

**Contractor Cost Data Reports (CCDR).** See DoDI 5000.02, Table 4.

**Software Resources Data Report (SRDR).** See DoDI 5000.02, Table 4.

**Major Automated Information System Reports.** See DoDI 5000.02, Table 2-1.

## 3. MANAGEMENT OF THE ACQUISITION PROCESS.

The person responsible for ensuring the acquisition management system activities result in fulfilling the warfighter's need is the program manager (PM). The PM is also the single point of accountability for accomplishing program objectives for total life cycle systems management, including sustainment. The PM is responsible for the entire system life cycle (design to disposal) (Total Life Cycle System Management [TLCSM] is required by DoDD 5000.01), and must consider supportability, life cycle costs, performance, and schedule in making program decisions. Each defense acquisition program is assigned a PM in accordance with DoD and component policy. The primary program management activities follow:

**Planning.** One of the first planning activities is the development of an acquisition strategy (see the *Defense Acquisition Guidebook*), an overarching plan that serves as a roadmap for program execution from program initiation through post-production support. It describes how the program will accomplish its objectives in terms of (among others) cost, schedule, performance, risk, and contracting activities.

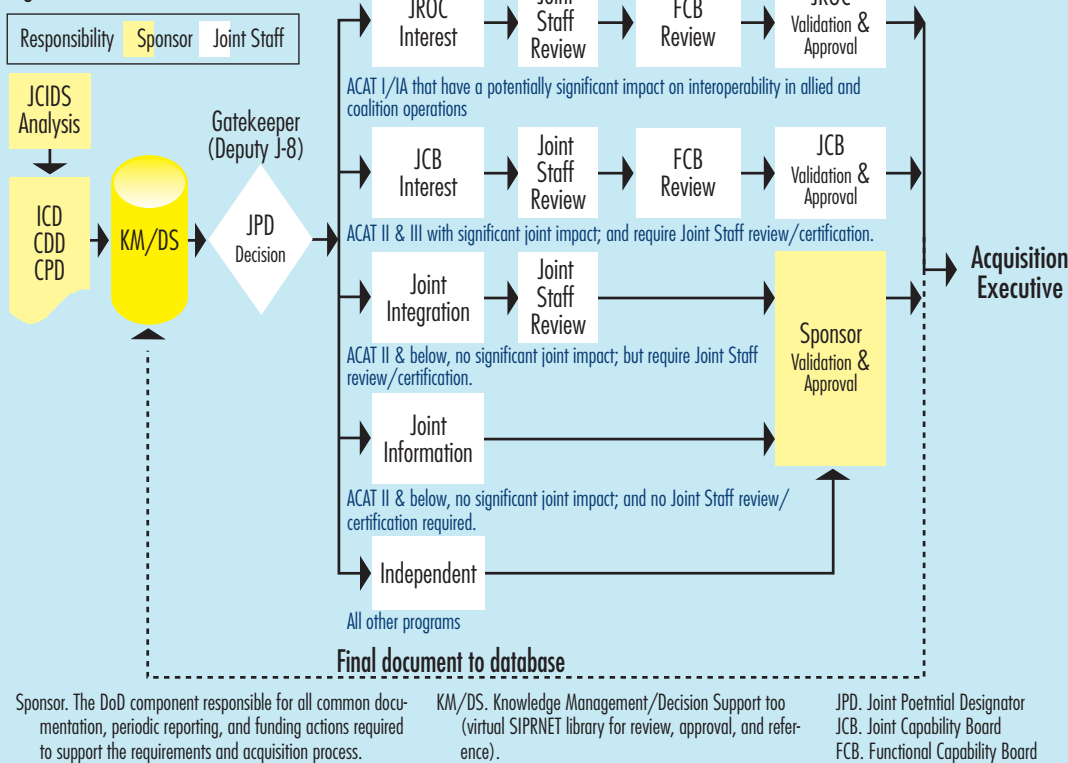
- ACAT I and IA programs normally provide information on the strategy elements as noted in Figure 2. The PM may choose to develop the acquisition strategy as a standalone document or as part of a multipurpose document “(e.g., Air Force Life Cycle Management Plan). Each program's acquisition strategy is tailored to meet the specific needs and circumstances of the program.
- There are two basic strategy approaches—evolutionary and single step to full capability. Evolutionary acquisition is the preferred DoD strategy for rapid acquisition of mature technology for the user. An evolutionary approach delivers capability in increments, anticipating the need for future capability improvements.

**Organizing and Staffing.** The establishment, organization, and staffing of the program office should be a direct outgrowth of a task analysis that supports the program's acquisition strategy. As the program evolves, the program office organization and staffing should evolve to support the changing task requirements and acquisition environment.

**Controlling.** The control system consists of standards against which progress can be measured, a feedback mechanism that provides information to a decision maker, and a means to make corrections either to the actions underway or to the standards. Examples of standards include the acquisition program baseline, exit criteria, program schedules, program budgets, specifications, plans, and test criteria. Examples of feedback mechanisms for program control, oversight, and risk management include the Joint Requirements Oversight Council, overarching integrated product team, Defense Acquisition Board, Information Technology Acquisition Board, integrated baseline review, technical reviews, and developmental and operational test and evaluation.

**Leading.** Effective leadership is the key to program success. It involves developing an organization's mission, vision, and goals, and clearly articulating a set of core values. Dominant leadership roles in program management include strategy setting, consensus/team building, systems integration, and change management. For successful teams, factors such as empowerment, clear

Figure 3. JCIDS Document Flow



purpose, open communication, adequate resources, and a team-oriented behavioral environment are critical.

#### 4. JOINT CAPABILITIES INTEGRATION AND DEVELOPMENT SYSTEM (JCIDS).

The procedures established in the JCIDS support the chairman of the Joint Chiefs of Staff and the Joint Requirements Oversight Council in identifying, assessing, and prioritizing joint military capability needs. These needs are reflected in a series of documents that support the acquisition process (see figure 3):

- **Initial Capabilities Document (ICD).** A document that describes the need for a materiel approach to a specific capability gap derived from an initial analysis of materiel approaches. The ICD defines the capability gap in terms of the functional area, the relevant range of military operations, desired effects, and time. It summarizes the results of the Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF) analysis and describes why non-materiel changes alone are not adequate to fully provide the capability. The ICD supports the Materiel Development Decision and Milestone A.
- **Capability Development Document (CDD).** A document that captures the information necessary to develop a proposed program, normally using an evolutionary acquisition strategy. The CDD outlines an affordable increment of militarily useful, logistically supportable and technically mature capability. The CDD supports program initiation at Milestone B.
- **Capability Production Document (CPD).** A document that addresses the production elements specific to a single increment of an acquisition program. The CPD supports Milestone C.

**Capabilities-Based Assessment (CBA).** CBA is the analysis part of JCIDS that defines capability gaps, capability needs, and approaches to provide those capabilities within a specified functional or operational area. Based on national defense policy and centered on a common joint warfighting construct, the analyses initiate the development of integrated, joint capabilities from a common understanding of existing joint force operations, and DOTMLPF capabilities and deficiencies. See upper left front of chart.

**DOTMLPF Change Recommendation (DCR).** A document focusing on changes that are primarily non-materiel in nature, although there may be some associated materiel changes (additional numbers of existing commercial or non-developmental) required. DCRs are normally referred to as “non-materiel” solutions, while acquisition programs are referred to as “materiel” solutions.

**Military Utility Assessment (MUA).** Replaces the ICD for Joint Capability Technology Demonstrations (JCTD) or other

approved prototype projects, and guides development of CDD and CPD for these efforts.

**Interoperability.** The policies for interoperability are found in CJCSI 3170.01 series, JCIDS, and CJCSI 6212.01 series, *Interoperability of Information Technology (IT) and National Security Systems (NSS)*. The following are key aspects of this policy:

- **Global Information Grid (GIG).** The globally interconnected, set of information capabilities, associated processes and personnel for collecting, processing, storing, disseminating, and managing information on demand to warfighters, policy makers, and support personnel. The GIG includes all owned and leased communications and computing systems and services, software (including applications), data, security services, and other associated services necessary to achieve information superiority.
- **GIG Technical Guidance (GTG).** GIG Technical Guidance (GTG) is an evolving web-enabled capability providing the technical guidance necessary for an interoperable and support able GIG built on net-centric principles.

- **Architecture Viewpoints and DoDAF-Described Models.** An architecture viewpoint is a selected set of architectural data that has been organized to facilitate visualization in an understandable way. An Architectural Description can be visualized in a number of formats, such as dashboard, fusion, textual, composite, or graphics, which present data and derived information collected in the course of the development of an architectural Description. A view is only a presentation of a portion of the architectural data, in the sense that a photograph provides only one view of the object within the picture, not the entire representation of that object. Figure 4 provides a graphical representation of the architecture viewpoints in DoDAF V2.0. Architectural view/viewpoint requirements IAW DoDAF Ver. 2.0 for JCIDS documents will be specified in the next update of the CJCSI 6212.01 series.

**Interoperability and Supportability Certification.** I&S Certification verifies adherence to the Net-Ready Key Performance Parameter (NR-KPP) throughout the life cycle by analyzing requirements documents, ISPs, and testing plans for appropriate requirements characterization and execution of the five elements of the NR-KPP. The requirement for I&S Certification of IT and NSS capabilities for ACAT programs will be determined during the JCIDS process and will be updated prior to each milestone and reviewed prior to recertification every four years, or when significant changes occur throughout the operational life of a system. The Joint Staff, J-6 will perform I&S certification for JROC & JCB Interest and Joint Integration documents (CDD and CPD) and the associated Information Support Plan (ISP) or Tailored ISP. I&S certification authority is delegated to C/S/As for ACAT II and below programs of record without joint interface requirements (see CJCSI 6212.01 series).

**Joint Interoperability Test Certification.** Provided by the Joint Interoperability Test Command upon completion of testing, valid for four years from the date of the certification or when subsequent program modifications change components of the NR-KPP or supportability aspects of the system (when materiel changes [e.g., hardware or software modifications, including firmware] and similar changes to interfacing systems affect interoperability; upon revocation of joint interoperability test certifications; non-materiel changes [i.e., DOTMLPF] occur that may affect interoperability).

**Net-Ready Key Performance Parameter (NR-KPP)** The NR-KPP defines the performance attributes and creates the framework for identifying the information structure necessary to successfully enable the functional capabilities identified in the requirements documents. The NR-KPP is composed of five elements: compliant solution architectures, compliance with net-centric data and services strategy, compliance with applicable technical standards and interfaces through the GIG technical guidance, compliance with mandatory DoD IA requirements, and DoD supportability requirements. Characterization and

execution of these 5 elements must be in compliance with DoD policy (see CJCSI 6212.01 series).

## 5. INFORMATION TECHNOLOGY (IT) & NATIONAL SECURITY SYSTEMS (NSS).

Software components of defense systems should be tightly linked to and managed as an inherent part of the overall systems engineering processes. Software-specific considerations are:

- Ensuring that software technologies and complex algorithms are matured prior to Milestone B.
- Careful consideration of COTS capabilities and licensing. For COTS IT solutions, specific plans by phase are required. Additionally, use of the DoD Enterprise Software Initiative and “SmartBUY” is required for commercial software purchases whenever appropriate.
- Exploiting software reuse wherever feasible.
- Selecting contractors with systems domain experience, successful past-performance, and mature development capabilities and processes.
- Use of DoD standard data IAW DoDD 8320.02 and compliance with the DoD Net-Centric Data Strategy.
- Early planning for transition to software support.
- Designing extensible and modular software so as to better support incremental life cycle product upgrades.
- Evaluating programming languages used in the context of their life cycle costs, support risks, and interoperability.
- Assessing information operations risks (see DoDD 3600.01) using techniques such as Program Support Reviews.
- Emphasis on software security and assurance considerations throughout the life cycle, including certification of foreign nationals who work on key defense system software. Other detailed mandatory IA considerations required by life cycle phase include development of an IA strategy. Details of the DoD Information Assurance Certification and Accreditation Process (DIACAP), required to authorize operation of DoD information systems IAW statutory, federal, and DoD requirements can be found in DoDI 8510.01

**Other IT & NSS Management Considerations.** Defense systems must be inherently joint and network-centric; as such, IT is an inherent enabler of net-centricity. Additionally, a number of legal and regulatory considerations apply to IT and NSS systems. These considerations include:

- The GIG (mentioned earlier) (DoDD 8100.01) is the organizing and transforming construct for managing IT throughout the DoD.
- The GIG Technical Guidance (GTG) contains a program questionnaire and compliance matrices/declaration tables that point to applicable GIG Enterprise Service Profiles (GESPs) for use in the interoperability and supportability certification process.
- Enterprise and domain-specific architectures are key to achieving scalable and interoperable IT systems. Use of the DoD Architecture Framework (DoDAF), which requires programs to document their architectures in a

series of specially tailored “viewpoints” that are produced at varying levels of detail at various points in a program’s life cycle is mandatory.

- Collections of standards that the DoD has selected as key to facilitating system interoperability have been collected into an online tool, the DoD IT Standards Registry (DISR). <https://disronline.disa.mil>
- The Clinger-Cohen Act (CCA) applies to all federal IT and NSS acquisitions. CIO confirmation of compliance is required at MS A, B, C, and FRPDR for all programs.
- Management of Defense Business Systems. A defense business system is an information system, other than a NSS, operated by, for, or on behalf of the DoD, including financial systems, mixed systems, financial data feeder systems, and IT and information assurance infrastructure. Review and certification of defense business systems modernizations with total modernization or development funding exceeding \$1 million is overseen by the Defense Business Systems Management Committee and is described by enclosure 11 to DoDI 5000.02.

## 6. EARNED VALUE MANAGEMENT (EVM).

A program management tool that integrates the work scope, schedule, and cost parameters of a program in a manner providing objective performance measurement and management. As work is performed, the corresponding budget value is “earned.” EVM directly supports nine management processes: organizing, scheduling, work authorization, accounting, indirect management, management analysis, change incorporation, material management, and subcontract management.

### Processes Associated with EVM

- **ANSI/EIA-748 EVMS Standard.** Thirty-two management guidelines published in the American National Standards Institute/Electronic Industries Alliance Standard 748, Earned Value Management Systems (ANSI/EIA-748). The DoD formally adopted the guidelines in ANSI/EIA-748 in August 1999 for application to defense acquisition programs.
- **Integrated Baseline Reviews (IBR).** Joint government/contractor reviews to assess the realism and accuracy of the integrated performance measurement baseline (work, schedule, and budget) and gain a mutual understanding of inherent risks.
- **EVMS Compliance.** The continuing operation of the contractor’s EVMS in accordance with the guidelines in ANSI/EIA-748.
- **EVMS Validation.** A formal determination by an independent party, normally DCMA, that a contractor’s EVMS meets the guidelines in ANSI/EIA-748.
- **EVMS Surveillance.** A recurring process by an independent party, normally DCMA, assessing the continuing compliance of the contractor’s EVMS with ANSI/EIA-748 and the contractor’s written system documentation.

### EVM Independent Variables

- **Actual Cost of Work Performed (ACWP or Actual Cost).** The costs actually incurred and recorded in accomplishing work performed.
- **Budget at Completion (BAC or Authorized Work).** The total authorized budget for accomplishing the program scope of work. BAC is a term that may also be applied to lower level budgets.

- **Budgeted Cost for Work Performed (BCWP or Earned Value).**

The value of completed work expressed in terms of the budget assigned to that work.

- **Budgeted Cost for Work Scheduled (BCWS or Planned Value).** The time-phased budget plan for work currently scheduled.

• **EVM Reporting**—A common work-breakdown structure (WBS) that follows the *DoD WBS Handbook* (MIL-HDBK-881) is required for all EVM-related reporting.

• **Contract Performance Report (CPR).** A report, prepared by the contractor, containing contract cost and schedule performance information to identify problems early and forecast future performance. (DI-MGMT-81466A)

• **Integrated Master Schedule (IMS).** A time-based schedule containing the networked, detailed tasks necessary to ensure successful program execution. (DI-MGMT-81650)

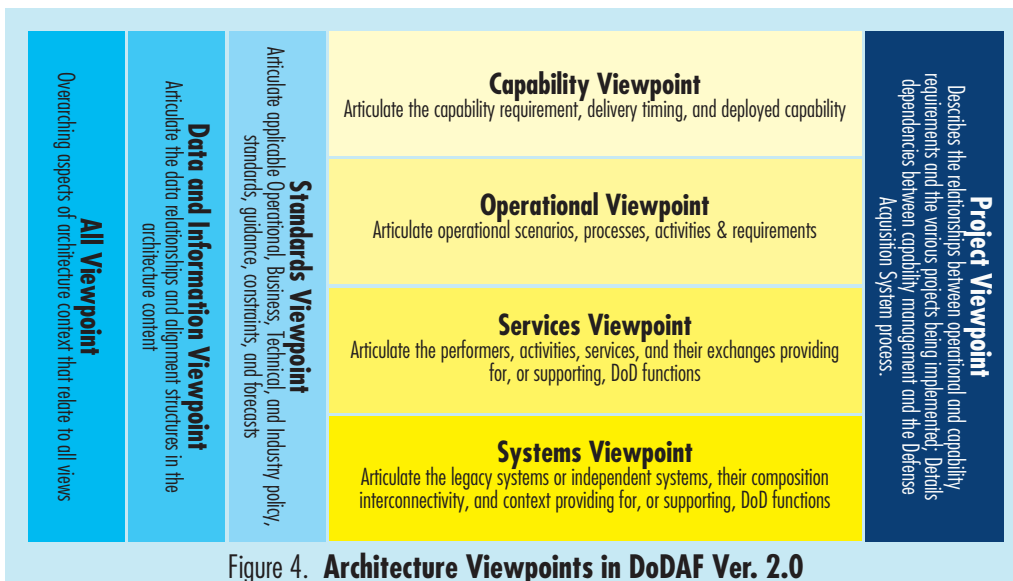


Figure 4. Architecture Viewpoints in DoDAF Ver. 2.0

• **Contract Funds Status Report (CFSR).** A report containing contract funding data. (DI-MGMT-81468)

## 7. CONTRACTING.

**Acquisition Plan.** A formal written document reflecting the specific actions necessary to execute the approach established in the approved acquisition strategy and guiding contractual implementation. (FAR Subpart 7.1 and DFARS Subpart 207.1) There is no

DoD-level rule that precludes the PM from preparing a single document to satisfy both the requirement for an Acquisition Plan and an Acquisition Strategy (see DAG, part 2.4)

**Source Selection Plan (SSP).** Explains the source selection process for a particular acquisition. Typically, the SSP consists of two parts. The first part describes the organization and responsibilities of the source selection team. The second part identifies the evaluation criteria and detailed procedures for proposal evaluation.

**A Draft Request for Proposals (RFP) and Presolicitation Conferences.** Used to ensure that the requirements are understood by industry. Open and honest feedback is essential.

**Request for Proposals (RFP).** Used in negotiated acquisitions to communicate the government's requirements and to solicit proposals.

**Requests for Information (RFI).** May be used when the government does not presently intend to award a contract, but wants to obtain price, delivery, and other market information or capabilities for planning purposes. Responses to these notices are not offers and cannot be accepted by the government to form a binding contract. There is no required format for RFIs.

**Contract Management** is the process of systematically planning, organizing, executing, and controlling the mutually binding legal relationship obligating the seller to furnish supplies and/or services and the buyer to pay for them.

**Contract.** The formal written agreement between the government and industry. See Figure 5 for the characteristics of the most common contract types. Figure 6 illustrates the most likely contract type for each phase of the acquisition process.

**Performance-Based Acquisition (PBA).** An acquisition structured around the results to be achieved as opposed to the manner by which the work is to be performed.

**Statement of Work; Statement of Objectives; Performance Work Statement; System Specification; Contract Data Requirement List.** Documents contained in the solicitation to industry (RFP) that define contractual requirements:

- **Statement of Work (SOW)** details the work the contractor will perform and, when necessary, specifies how the work is to be performed.
- **Statement of Objective (SOO).** Performance-based broad objectives of the product/service. The SOO contains top-level objectives of the program and is usually one to two pages. The contractor is tasked in the RFP to provide a Performance Work Statement (PWS) or a SOW in response to the SOO.
- **Performance Work Statement (PWS)** A statement of work for performance-based acquisitions that describes the required results in clear, specific and objective terms with measurable outcomes.
- **System Specification** sets forth the technical performance requirements the system must achieve (what the system will do).
- **Contract Data Requirement List (CDRL),** DD Form 1423 is a requirement identified in the solicitation and imposed in a contract that lists contract data requirements that are specified for a specific acquisition.

**Cost-Reimbursement Contracts.** A category of contracts in which the government pays the cost (subject to specified limitations) and the contractor provides "best efforts." This type may provide for payment of a fee that may consist of an award fee, incentive fee, or fixed fee, or combinations of the three fee types. The government assumes most of the cost risk in this type of contract.

**Engineering Change Proposal (ECP).** A formal document used to make engineering changes to configuration management baselines. ECPs are implemented by contract modification(s).

**Fixed-Price Contracts:** A category of contracts (e.g., Firm-Fixed-Price, Fixed-Price Incentive-Firm Target) in which the government pays a price that is subject to specified terms and conditions and the contractor delivers a product or service. This type may provide for payment of incentives or other sharing arrangements. The contractor bears most of the cost risk in this type of

Figure 5. **Characteristics of Contract Categories**

Promise	Cost-Reimbursement Best effort	Fixed Price Shall deliver
Risk to contractor	Low	High
Risk to gov't	High	Low
Cash flow	As incurred	On delivery
Financing	None	Progress/performance payments
Administration	Max gov't control	Min gov't surveillance
Fee/profit	CPFF max 15/10%	No limit

contract.

## 8. COST ESTIMATING AND FUNDING.

**Government Budget Plan.** The generic title for an internal government document that plans the long-range budgeting strategy for the life of a given program.

**Planning, Programming, Budgeting, and Execution**

**(PPBE) Process.** The PPBE Process is a time-driven resource allocation process to request funding for all operations, including weapon system development and acquisition. It is essential to convert each program's event-driven acquisition strategy and phasing into the PPBE Process calendar-driven funding profiles to assure the appropriate amount and type of funds are available to execute the desired program.

**Planning.** The first phase of PPBE, planning produces the Defense Planning and Programming Guidance (DPPG). The DPPG is based on guidance from the National Security Strategy, the National Defense Strategy, and the National Military Strategy along with other top-level guidance appropriate for each annual program budget cycle. The DPPG guides the Programming phase of PPBE.

**Programming.** The second phase of PPBE, Programming, produces a 5-year Program Objective Memorandum (POM) from each military department, defense agency, and other selected DoD components. The POM is submitted to the Office of the Secretary of Defense (OSD) IAW a schedule published by OSD early each calendar year. A POM review is conducted at OSD and decisions are made by the Deputy Secretary of Defense as to funding priorities over the 5-year timeframe.

**Budgeting.** The third phase of PPBE, Budgeting, runs concurrent with Programming and produces the DoD portion of the president's annual budget for submission to Congress. A Budget Estimate Submission (BES) is submitted by each department/agency that submits a POM. The BES is submitted concurrent with the POM and reflects a budget for the first year of the POM. The BES is reviewed by analyst from the office of the Under Secretary of Defense (Comptroller) and from the Office of Management and Budget (OMB). Funding changes as a result of the review are documented in decision memoranda approved by the Deputy Secretary of Defense.

**Execution Review.** Concurrent with the preparation of the POM/BES, "execution" reviews take place in which DoD evaluates actual output against planned performance and adjusts resources as appropriate.

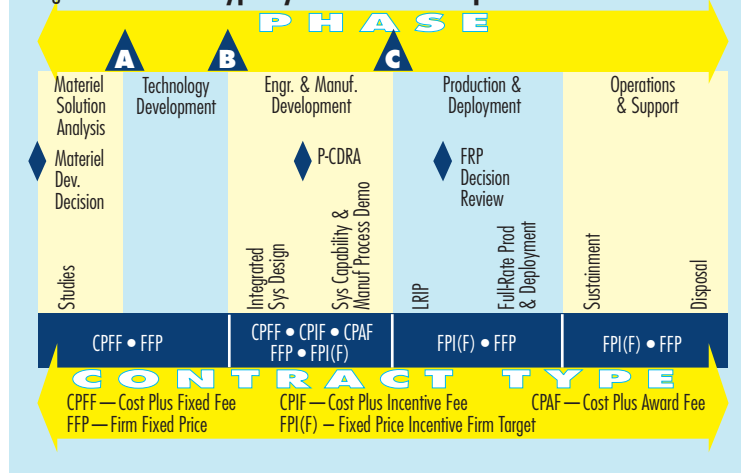
**Enactment.** The process that the Congress uses to develop and pass the Authorization and Appropriations Bills. In the enactment process, DoD has an opportunity to work with Congress and defend the president's budget.

**Future Years Defense Program.** A massive DoD database and internal accounting system that summarizes forces and resources associated with programs approved by the Secretary of Defense.

**Funding Appropriation Types:**

- **RDT&E Budget Activities:**

Figure 6. **Contract Type by Phase of the Acquisition Process**



**1. Basic Research** includes all efforts and experimentation directed toward increasing fundamental knowledge and understanding in those fields of the physical, engineering, environmental, and life sciences related to long-term national security needs.

**2. Applied Research** translates promising basic research into solutions for broadly defined military needs, short of development projects. This type of effort may vary from systematic mission-directed research, which is beyond that in Budget Activity 1, to sophisticated breadboard hardware, study, programming, and planning efforts that establish the initial feasibility and practicality of proposed solutions to technological challenges. These funds are normally applied during concept refinement.

**3. Advanced Technology Development** includes all efforts that have moved into the development and integration of hardware for field experiments and tests. The results of this type of effort are proof of technological feasibility and assessment of operability and producibility rather than the development of hardware for service use. These funds are normally applied during technology development.

**4. Advanced Component Development & Prototypes** includes all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology. These funds are normally applied during technology development but could be applied throughout the life cycle.

**5. System Development & Demonstration** includes those projects in system Engineering & Manufacturing Development but not yet approved for low-rate initial production at Milestone C. These funds are normally applied during the engineering & manufacturing development phase of the life cycle.

**6. RDT&E Management Support** includes test and other types of R&D support. These funds are used to support development efforts throughout the life cycle.

**7. Operational Systems Development** includes modifications and upgrades to operational systems.

- **Procurement** is used to finance investment items and should cover all costs integral and necessary to deliver a useful end item intended for operational use or inventory.
- **Military Construction (MILCON)** funds the cost of major construction projects such as facilities. Project costs include architecture and engineering services, construction design, real property acquisition costs, and land acquisition costs necessary to complete the construction project.
- **Military Personnel (MILPERS)** funds the costs of salaries and compensation for active military and National Guard personnel as well as personnel-related expenses such as costs associated with permanent change of duty station (PCS), training in conjunction with PCS moves, subsistence, temporary lodging, bonuses, and retired pay accrual.
- **Operations and Maintenance (O&M)** finances those things that derive benefits for a limited period of time, i.e., expenses, rather than investments. Examples are headquarters operations, civilian salaries, travel, fuel, minor construction projects of \$500K or less, expenses of operational military forces, training and education, recruiting, depot maintenance, purchases from Defense Working Capital Funds, and base operations support.

**Cost Estimating** is a realistic appraisal of the level of cost most likely to be realized. Types of cost estimating are analogy, parametric, engineering, and extrapolation from actual costs.

- **Analogy** is used early in the acquisition life cycle. A one-to-one comparison of an existing system similar to the system you are designing.
- **Parametric** uses statistical analysis from a number of similar systems and their relationship to your system.
- **Engineering.** A bottoms-up estimate using the detailed WBS structure to price out components discrete components, such as material, design hours, labor, etc.
- **Extrapolation from actual costs.** Method used late in the acquisition life cycle after actual cost data are available from the same system at an earlier time.

**Life Cycle Cost (LCC)** is the total cost to the government of acquisition and ownership of the system over its full life time. It includes the cost of development, acquisition, support, and (where applicable) disposal.

## 9. TECHNICAL ACTIVITIES.

**Systems Engineering.** Systems Engineering transforms needed operational capabilities into an integrated system design through concurrent consideration of all life cycle needs. Systems Engineering is a structured, disciplined, and documented technical effort that simultaneously designs and develops systems products and

processes to satisfy the needs of the customer. In the DoD, Systems Engineering activities are based around eight technical management processes (technical planning, requirements management, interface management, risk management, configuration management, technical data management, technical assessment, and decision analysis).

**Important Design Considerations.** A number of key areas, some of which are mandated by statute, are called out for special consideration and emphasis during the design solution process. They form the basis for trade-offs in seeking an optimal, life cycle balanced technical solution. These design considerations are described in Chapter 4 of the *Defense Acquisition Guidebook* (DAG).

### Configuration Management (CM) Baselines:

- **Functional Baseline.** The technical portion of the program requirements (system performance specification) that provides the basis for contracting and controlling the system design. It is normally established by the government at the system functional review (SFR).
- **Allocated Baseline** defines the performance requirements for each configuration item of the system (item performance specifications). The contractor normally establishes this early in the process (not later than the preliminary design review [PDR]). Government control is typically deferred until the system verification review (SVR).
- **Product Baseline** is established by the detailed design documentation for the system. It includes the process and materials baseline. Government control of the initial product baseline occurs after Critical Design Review (CDR) and final product baseline is approved and validated at the Physical Configuration Audit (PCA).

### Technical Management Plans:

- **Systems Engineering Plan (SEP)** (required at each milestone) is a comprehensive, living document that defines the program's systems engineering activities, addressing both government and contractor technical activities and responsibilities.
  - **Integrated Master Plan (IMP)** is an event-driven plan that defines a program's major tasks and activities and lays out the necessary conditions to complete them.
  - **Integrated Master Schedule (IMS)** is a time-based planning tool that uses a calendar or detailed schedule to demonstrate how work efforts will support tasks and events, often integrated with an IMP.
- Reviews and Audits.** (These are tailored to the program's acquisition strategy.)
- **Initial Technical Review (ITR).** A multi-disciplined technical review to support a program's initial POM submission.
  - **Assessment of Operational Test Readiness (AOTR).** An independent assessment by the office of the USD(AT&L) of operational test readiness for all ACAT ID programs and special interest programs.
  - **Alternative Systems Review (ASR).** A technical review that demonstrates the preferred concept is cost effective, affordable, operationally effective and suitable, and can be developed to provide a timely solution to a need at an acceptable level of risk.
  - **System Functional Review (SFR).** A formal review of the conceptual design of the system to establish its capability to satisfy requirements. It establishes the functional baseline.

- **System Requirements Review (SRR).** A formal, system-level review conducted to ensure that system requirements have been completely and properly identified and that a mutual understanding between the government and contractor exists.
- **Software Specification Review (SSR).** A subsystem formal review of requirements and interface specifications for computer software configuration items.
- **Preliminary Design Review (PDR).** A formal review that confirms the preliminary design logically follows the SFR findings and meets the requirements. It normally results in approval to begin detailed design.
- **Critical Design Review (CDR).** A formal review conducted to evaluate the completeness of the design and its interfaces.
- **Test Readiness Review (TRR).** A formal review of contractors' readiness to begin testing on both hardware and software configuration items.
- **Functional Configuration Audit (FCA).** A formal review conducted to verify that all subsystems can perform all of their required design functions in accordance with their functional and allocated configuration baselines.
- **System Verification Review (SVR).** A formal review conducted to verify that the actual item (which represents the production configuration) complies with the performance specification.
- **Physical Configuration Audit (PCA).** A formal audit that establishes the product baseline as reflected in an early production configuration item.

- **Production Readiness Review (PRR).** A formal examination of a program to determine if the design is ready for production, production engineering problems have been resolved, and the producer has accomplished adequate planning for the production phase.
- **In-Service Review (ISR).** A formal technical review that is to characterize in-Service technical and operational health of the deployed system by providing an assessment of risk, readiness, technical status, and trends in a measurable form that will substantiate in-Service support and budget priorities.

**Test and Evaluation (T&E)** is a verification and validation process by which a system or components are compared against capability needs and specifications through testing. The results are evaluated to assess progress of design, performance, supportability, etc.

- **Beyond Low-Rate Initial Production (BLRIP) Report.** Completed by the Director, Operational Test and Evaluation (DOT&E) to assess the IOT&E for MDAPs prior to the FRP decision review (or, before proceeding beyond LRIP—hence the name of the report). A copy is provided to the USD(AT&L) and to the congressional defense committees.
- **Combined Developmental and Operational Testing (DT/OT).** Combining DT and OT is encouraged to achieve time and cost savings. The combined approach must not compromise either DT or OT objectives. A final independent phase of IOT&E is required for ACAT I and II and other programs on the OSD T&E oversight list prior to the FRP decision.
- **Developmental Test and Evaluation (DT&E).** A technical test conducted to provide data on the achievability of critical system performance parameters. This verification testing is performed on components, subsystems, and system-level configurations of hardware and software.
- **Evaluation Strategy.** A description of how the capabilities in the ICD will be evaluated once the system is developed. The evaluation strategy will evolve into the TEMP, which is first due at Milestone B.
- **Follow-On Operational Test & Evaluation (FOT&E).** OT&E needed during and after the production phase to refine estimates from the IOT&E, to evaluate system changes, and to re-evaluate the system as it continues to mature in the field. FOT&E may evaluate system performance against new threats or in new environments.
- **IOT&E.** All OT&E that is conducted on production or production representative articles to support a full-rate production decision. It is conducted to provide a valid estimate of expected system operational effectiveness and suitability for ACAT I and II programs and other programs on the OSD T&E oversight list.
- **Live Fire T&E (LFT&E).** A test process to evaluate the vulnerability and/or lethality aspects of conventional missiles, munitions, or weapon systems. LFT&E is required by law (Title 10 U.S.C. 2366) for covered systems, major munitions programs, missile programs, or product improvements to covered systems major munitions programs, or missile programs, before they can proceed beyond LRIP. A covered system is a system that DOT&E has determined to be ACAT I or ACAT II program, user occupied and designed to provide protection to occupants; or a conventional munitions or missile program; or, a mod to a covered system that is likely to significantly affect the survivability or lethality of the system.
- **LFT&E Report.** Completed by DOT&E for covered systems that have been subjected to a full-up live fire test prior to FRP decision review. Usually included in DOT&E report of IOT&E (BLRIP report) when sent to Congress.
- **Modification T&E.** Testing done after FRP decision review to evaluate modifications/upgrades/improvements to an in-production or fielded system.
- **Operational Assessment (OA).** An evaluation of operational effectiveness and suitability made by an independent operational test agency, with user support as required, on other-than-production systems. An OA conducted during integrated system integration is often called an early operational assessment (EOA).
- **Operational Test and Evaluation (OT&E).** The field test, under realistic conditions, of any item (or key component) of weapons, equipment, or munitions for the purpose of determining and validating the effectiveness and suitability of the weapons, equipment, or munitions for use in combat by typical military users.
- **Production Acceptance T&E (PAT&E).** T&E of production items to demonstrate that items procured fulfill the requirements and specifications of the procuring contract or agreements.
- **Production Qualification T&E (PQT&E).** A technical test conducted to ensure the effectiveness of the manufacturing process, equipment, and procedures. These tests are conducted on a number of samples taken at random from

the first production lot and are repeated if the design or process is changed significantly.

- **Qualification Testing.** Testing that verifies the contractor's design and manufacturing process and provides a performance parameter baseline for subsequent tests. (Best Practice)
- **Test and Evaluation Master Plan (TEMP).** Documents the overall structure and objectives of the T&E program. It provides a framework within which to generate detailed T&E plans and documents schedule and resource implications associated with the T&E program. The TEMP identifies the necessary DT&E, OT&E, and LFT&E activities. It should be closely aligned with the SEP.
- **Test and Evaluation Strategy (TES).** An early test and evaluation planning document that describes the overall approach for integrating developmental, operational, and live-fire test and evaluation and addresses test resource planning. Over time, the scope of this document will expand and evolve into the TEMP.
- **Vulnerability T&E.** Testing a system or component to determine if it suffers definite degradation as a result of having been subjected to a certain level of effects in an unnatural, hostile environment. A subset of survivability.

**Manufacturing** (also called Production) is the conversion of raw materials into products and/or components through a series of manufacturing procedures and processes. Manufacturing management is the technique of planning, organizing, directing, controlling, and integrating the use of people, money, materials, equipment, and facilities to accomplish the manufacturing task economically.

An acquisition strategy outlines the approach to obtaining a certain amount of a product or system, within a planned timeframe and funding. The desired product or system has to be manufactured/produced to a quality level that provides confidence the system will perform as advertised. The production strategy is the approach to obtaining the total quantity of the system, at some rate, for some cost, and must match up with the acquisition strategy.

The role of manufacturing during the pre-production period is to influence the design of the subsystems and systems and to prepare for production. Once production has been authorized, the role of manufacturing is to execute the manufacturing plan. The overall objective of manufacturing is to provide a uniform, defect-free product with consistent performance and a lower cost in terms of both time and money.

- **Design Producibility.** A measure of the relative ease of manufacturing a product design. Emphasis is on simplicity of design and reduction in opportunities for variation during fabrication, assembly, integration and testing of components, processes, and procedures.
- **The Manufacturing Plan** is a formal description of a method for employing the facilities, tooling, and personnel resources to produce the design. The manufacturing plan must ensure that the items produced reflect the design intent, the processes are repeatable, and process improvements are constantly pursued.
- **Industrial Capability Assessment (ICA).** A legal requirement (10 U.S.C. 2440) at each milestone to analyze the industrial capability to design, develop, produce, support, and (if appropriate) restart the program.
- **The "5Ms" are Manpower, Materials, Machinery, Methods, and Measurement.** These are five major elements of all manufacturing and production efforts, and are referred to during resource requirements risk identification and management.
- **Variation Control.** Identification of key process and product characteristics, and reduction/elimination of significant differences from the nominal values of those characteristics so that those differences would not cause unacceptable degradation in product cost, quality, delivery schedule, or performance.
- **Process Proofing.** Demonstration of the required manufacturing capability in a realistic, production-representative facility.
- **Lean.** A fundamental way of thinking, intended to enable flexibility and waste reduction in order to reduce costs, cycle time, and defective products by focusing on those actions that will provide value to the end-item customer.
- **Engineering and Manufacturing Readiness Levels.** A means of communicating the degree to which a technology is producible, reliable, and affordable. Their use is consistent with efforts to include the consideration of engineering, manufacturing, and sustainment issues early in a program.

**10. LIFE CYCLE LOGISTICS (LCL)** is the planning, development, implementation, and management of a comprehensive, affordable, and effective systems support strategy within TLCSM. Life cycle logistics encompasses the entire system's life cycle including acquisition (design,

develop, test, produce, and deploy), sustainment (operations and support), and disposal. The principal goals/objectives of acquisition logisticians are to:

1. Influence product design for affordable system operational effectiveness (SOE).
  2. Design and develop the support system utilizing performance-based logistics (PBL).
  3. Acquire and concurrently deploy the supportable system, including support infrastructure.
  4. Maintain/improve readiness, improve affordability, and minimize logistics footprint.
- **Acquisition Logistics.** DoD decision makers must integrate acquisition and logistics to ensure a superior product support process by focusing on affordable system operational effectiveness as a key design and performance factor, and emphasizing life cycle logistics considerations in the systems engineering process.
  - **Business Case Analysis (BCA)** - A PBL BCA provides a best-value analysis, considering not only cost, but other quantifiable and non-quantifiable factors supporting an investment decision. This can include, but is not limited to, performance, producibility, reliability, maintainability, and supportability enhancements.
  - **Life Cycle Sustainment Plan (LCSP)** - DoD Directive 5000.01 requires programs to “implement performance-based logistics strategies that optimize total system availability while minimizing cost and logistics footprint”. These strategies are articulated in the LCSP, documenting the plan for implementing these strategies throughout the life of the program. The LCSP is an evolutionary document that provides the strategic framework for optimal sustainment at minimal LCC. It evolves into an execution plan for how sustainment is applied, measured, managed, assessed, and reported after system fielding. By Milestone C, the LCSP describes details on how the program will field and sustain the product support package necessary to meet readiness and performance objectives, lower total ownership cost, reduce risks, and avoid harm to the environment and human health.
  - **Performance-Based Life Cycle Product Support (PBL)** is the purchase of support as an integrated, affordable, performance package designed to optimize system readiness and meet performance goals for a weapon system through long-term support arrangements with clear lines of authority and responsibility. PBL is DoD’s preferred approach for product support implementation.
  - **The Product Support Strategy (PSS)** is part of the acquisition strategy, and addresses life cycle sustainment and continuous improvement of product affordability, reliability, and supportability, all while sustaining readiness. It ensures that system support and life cycle affordability considerations are addressed and documented.
  - **Product Support Manager (PSM)** - The day-to-day oversight and management of the product support functions are delegated to a product support manager who leads the development and implementation of the performance-based product support strategy and ensures achievement of desired support outcomes. The PSM, while remaining accountable for system performance, can delegate responsibility for delivering specific outcomes. In doing so, the PM and PSM may employ any number of sub system PSMs or product support integrators to integrate support from all support sources to achieve the performance outcomes specified in a PBA. The PSM is responsible for accomplishing the
- overall integration of product support either directly through government activities or via a contract when commercial organizations are involved.
- **The Product Support Integrator (PSI)** is an organic or private sector organization that is selected to serve as the single point of accountability for integrating all sources of support necessary to meet the agreed-to support/performance metrics.
  - **Performance-Based Agreements (PBAs)** establish a negotiated baseline of performance, and corresponding support necessary to achieve that performance, whether provided by commercial or organic support providers. PBAs with users specify the level of operational support and performance required by users.
  - **Supportability Analyses** are a set of analytical tools used as an integral part of the systems engineering process. These tools help determine how to most cost effectively support the system throughout the life cycle and form the basis for design requirements stated in the system performance specification and the product support management plan.
  - **Reliability, Maintainability, and Supportability (RMS)** are key components of system operational effectiveness.
  - **The Product Support Package** identifies support requirements based upon the inherent reliability and maintainability of the system. This total system product support package identifies the support elements that make up the PBL package. Continuous assessment of in-Service system performance will identify needs for system improvements to enhance reliability, slow obsolescence, and reduce/minimize corrosion or other LCL characteristics. This package details requirements for the following elements:
    - Supply Support (spare/repair parts)
    - Maintenance Planning & Management
    - Test/Support Equipment
    - Technical Data Management/IETM
    - Manpower & Personnel
    - Training & Training Support
    - Facilities & Infrastructure
    - Packaging, Handling, Storage & Transportation (PHS&T)
    - Design Interface
    - Computer Resources & Software Support
    - Product Support Management
  - **Pre-Deployment Evaluations** of the system must demonstrate supportability and life cycle affordability as entrance criteria for the production and deployment phase.
  - **Post Deployment Evaluations** of the system beginning with the Pre-IOC SR verify whether the fielded system meets thresholds and objectives for cost, performance, and support parameters, and support continuous improvement.
  - **Key Acquisition Documents** that reflect support inputs include the ICD, analysis of alternatives (AoA), CDD, CPD, TEMP, acquisition program baseline (APB), and the contract.

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