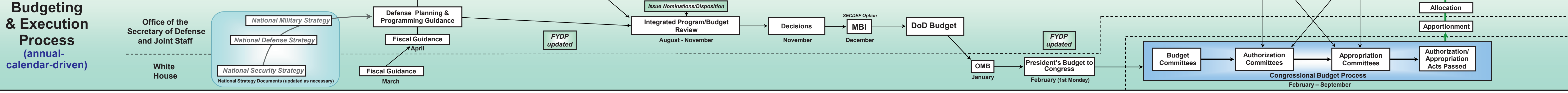
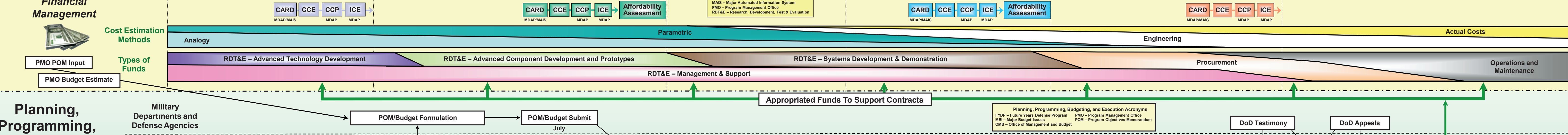
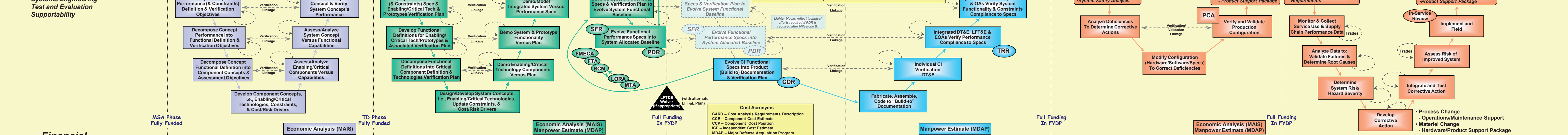
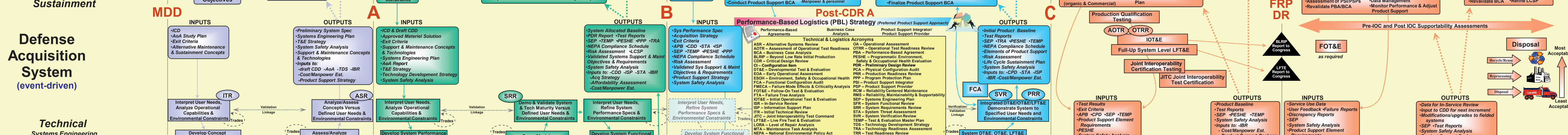
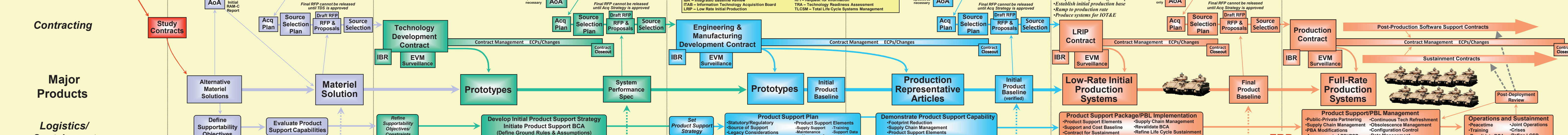
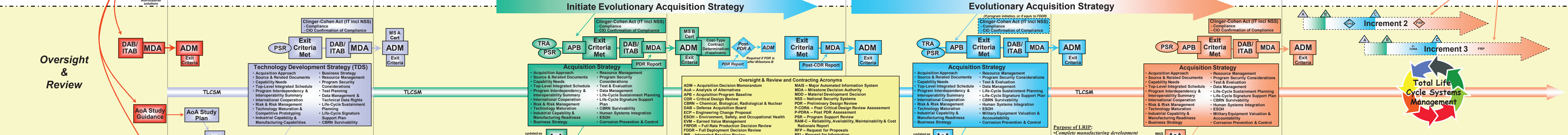
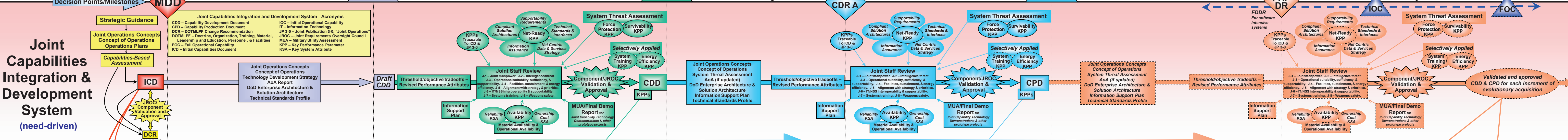


Integrated Defense Acquisition, Technology, and Logistics Life Cycle Management System

Following the Materiel Development Decision, the Milestone Decision Authority may authorize entry into the acquisition process at any point, consistent with phase-specific entrance criteria and statutory requirements

This chart is a classroom aid for Defense Acquisition University students. It provides a notional illustration of interfaces among three major decision support systems used to develop, produce and field a weapon system for national defense. Defense acquisition is a complex process with many more activities than shown here and many concurrent activities that cannot be displayed on a two-dimensional chart. For more information, see the Defense Acquisition Portal (<http://dap.dau.mil>).



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 process. 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 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 Instruction 5000.01.** The *Defense Acquisition System*, May 12, 2003
- **DoD Instruction 5000.02.** *Operation of the Defense Acquisition System*, Dec. 8, 2008
- **DoD Acquisition Guidebook (DAG).** <https://dag.dau.mil>
- **CJCS Instruction 3170.01G.** *Joint Capabilities Integration and Development System*, Mar. 1, 2009
- **JCIDS Manual (JCID).** *Joint Capabilities Integration and Development System*, July 31, 2009
- **CJCS Instruction 6212.01E.** *Interoperability of Information Technology and National Security Systems*, Dec. 15, 2008

The following Internet sites provide additional information:

- **Acquisition Community (ACQ).** <http://www.acq.osd.mil> 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/dfars/>

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

Acquisition Milestone/Decision Point	MDP	DP	ICD	CPD	PPBE
Acquisition System Requirements	X	X	X	X	X
Acquisition Program Baseline	X	X	X	X	X
Acquisition Strategy (See Figure 2)	X	X	X	X	X
Acquisition Information Assurance Strategy (all IT and NIS)	X	X	X	X	X
Workability Assessment	X	X	X	X	X
Alternate Life File T&E Plan (Agree w/Partner for LFT&E ²)	X	X	X	X	X
Analysis of Alternatives (AA) ^{3,4,5}	X	X	X	X	X
Joint Study Guidance	X	X	X	X	X
Benefit Analysis & Determination ⁶ (buried acquisitions)	X	X	X	X	X
Beyond RP/Report ⁷ (see also MANS)	X	X	X	X	X
Capability Development Document (CDD) ⁸	X	X	X	X	X
System Production Document (SPD)	X	X	X	X	X
Clinger-Cohen Act (CCA) Compliance ⁹	X	X	X	X	X
Competition Analysis ¹⁰ (operational maintenance only)	X	X	X	X	X
Competition CD Certification of Alternatives (CCA)	X	X	X	X	X
Contract Cost Estimate ¹¹ (MANS, optional MDP)	X	X	X	X	X
Coordination of Technology Issues (MDAP & MANS)	X	X	X	X	X
Cost/Logistics/Source of Repair Analysis ¹²	X	X	X	X	X
Consortium Prevention Control Plan ¹³	X	X	X	X	X
Cost Analysis Requirements Description ¹⁴ (MDAP & MANS)	X	X	X	X	X
Cost Management Strategy (MDAP & E&E) & E&E (MANS)	X	X	X	X	X
DoD CD Certification of CCA Compliance (MDAP & MANS)	X	X	X	X	X
Economic Analysis (MANS) (see also AA/Ch at MANS)	X	X	X	X	X
EI/CI/CI/CI	X	X	X	X	X
Identified Base Capabilities ¹⁵ (MDAP only)	X	X	X	X	X
Independent Cost Estimate (ICE) ^{16,17} (MANS only)	X	X	X	X	X
Independent Technology Readiness Assessment ¹⁸	X	X	X	X	X
Initial Capabilities Document (ICD) ¹⁹	X	X	X	X	X
Initial Operational Test & Evaluation Contract (I&E) & I	X	X	X	X	X
Joint Unique Identification (JUO) Plan (part of SP)	X	X	X	X	X
Joint Interoperability Test Certification (ITC) (NNS)	X	X	X	X	X
Life Cycle Signature Support Plan ²⁰	X	X	X	X	X
Life Cycle Sustainment Plan ²¹	X	X	X	X	X
Life File T&E (Covered systems only) (w/ MANS)	X	X	X	X	X
Life File T&E Report ²² (covered systems) (w/ MANS)	X	X	X	X	X
LRF Quantities (MDAP & ACAT) & E&E (w/ MANS)	X	X	X	X	X
Milestone Estimate (MANS) (MANS)	X	X	X	X	X
Material Review ²³	X	X	X	X	X
Milestone Decision Authority (MDA) ²⁴	X	X	X	X	X
MDA assessment of chem, bio, rad, and nav survivability	X	X	X	X	X
Operational Test Agency Report of O&E Results	X	X	X	X	X
Operational Test Review (PTR) Report, (if PDR after IIS 015)	X	X	X	X	X
Part CD Design Review (PDR) Report	X	X	X	X	X
Part Implementation Review	X	X	X	X	X
Program Production Plan (PPP)	X	X	X	X	X
Program Security & Occup Health Evaluation (PESHE) ²⁵	X	X	X	X	X
Program System Sustainment Plan (MANS only)	X	X	X	X	X
Selected Acquisition Report (SAR) ^{26,27}	X	X	X	X	X
System Supportability Determination	X	X	X	X	X
System Test Assessment (STA) (MANS) (MANS)	X	X	X	X	X
System Supportability Assessment (SSA) (MANS) (MANS)	X	X	X	X	X
Systems Engineering Plan (SEP)	X	X	X	X	X
Systems Development Plan (SDP)	X	X	X	X	X
Technical Readiness Assessment (TRA) ²⁸	X	X	X	X	X
Test & Evaluation Master Plan (TEMP)	X	X	X	X	X
Test & Evaluation Strategy (TES)	X	X	X	X	X

1. Part of IIS or Acquisition Strategy
2. OSD T&E Program
3. MANS, A.B.C. (MANS, A, B, FFP)
4. Milestone C Program Initiation
5. IIS or program initiation, currently thereafter
6. Validated by DIA for ACAT ID, AIS use DIA validated
7. Milestone C or equivalent to FFP
8. Milestone C or Milestone B
9. MANS whenever an economic analysis is required
10. IIS or Milestone B
11. ACAT ID only if required by DORAE
12. Summarized in IIS, details in IIS
13. IIS or program initiation, currently thereafter
14. Validated by DIA for ACAT ID, AIS use DIA validated
15. IIS or program initiation, currently thereafter
16. Milestone C or equivalent to FFP
17. PDR conducted after IIS & the MDA conducts a PDR Assessment
18. IIS or Milestone B
19. IIS or Milestone B
20. IIS or Milestone B
21. IIS or Milestone B
22. IIS or Milestone B
23. IIS or Milestone B
24. IIS or Milestone B
25. IIS or Milestone B
26. IIS or Milestone B
27. IIS or Milestone B
28. IIS or Milestone B

Figure 2. Acquisition Strategy
(Defense Acquisition Guidebook, Chapter 2)



and, it ends with disposal/recycling/demilitarization. Major 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 DoD 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 best practices as controlling objectives; and 5.) Effective management—decentralization to the extent practicable. DoD components first try to satisfy capability needs through non-material solutions such as changes in doctrine or tactics. If existing U.S. military systems or other on-hand material 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 Authority 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 and IAM programs. Quarterly. Also upon Program Objectives Memorandum (POM) and Budget Estimate Submission (BES). For ACAT only—upon UCR brief.
- **Selected Acquisition Report (SAR).** ACAT only. Submitted at program initiation for IAM programs and quarterly for SARs. May be required on an exception basis (see Defense Acquisition Guidebook, Chapter 10).
- **Unit Cost Report (UCR).** ACAT 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 primary program management activities follow 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 [TLCMS] is required by DoD 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 program 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 development. The CDQ outlines an affordable investment of military readiness 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, effort criteria, program schedules, program budgets, specifications, plans, and policies. The control system provides the framework for identifying the information necessary for oversight, risk management, and program control. The Joint Requirements Oversight Council, overseeing 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

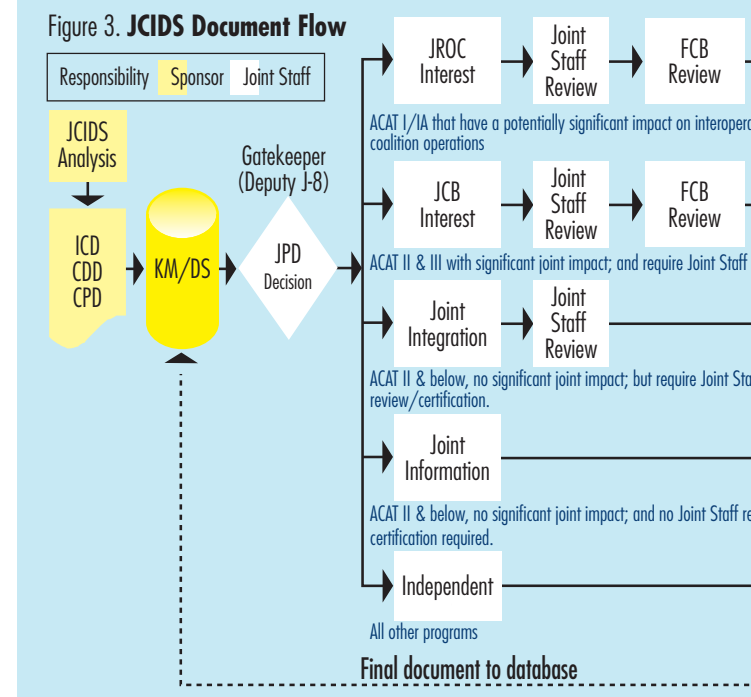


Figure 3. JCIDS Document Flow

The diagram illustrates the JCIDS Document Flow. It starts with **Responsibility Sponsor Joint Staff**. Key documents include **JCID**, **ICD**, **CPD**, and **PPBE**. The process involves **JROC Interest**, **Joint Staff Review**, **FCB Review**, and **JROC Validation & Approval**. A **Gatekeeper (Deputy JB)** is involved in the process. The flow leads to **Acquisition Executive** and **Joint Staff Review**. A **Final document to database** is also shown.

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 Executive Order, 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 investment of military readiness, 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 or operational area. Based on national defense policy and centered on a common joint warfighting construct, the analysis 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 materiel changes (additional requirements of existing component or non-developmental) required. DCRs are normally referred to as "non-materiel" solutions, while acquisition programs are referred to as "materiel" solutions.

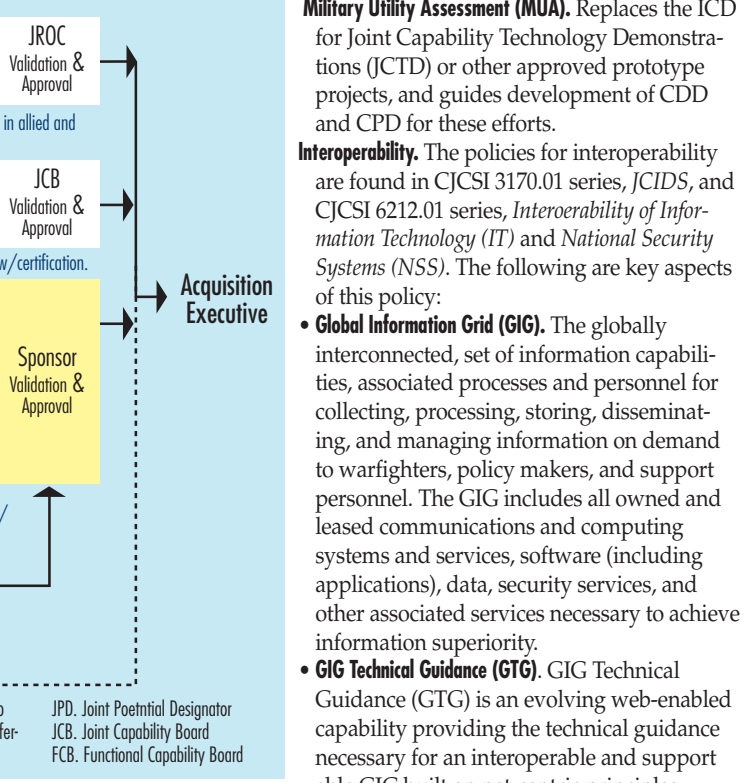


Figure 4. Architecture Viewpoints in DoDAF Ver. 2.0

The diagram illustrates the Architecture Viewpoints in DoDAF Ver. 2.0. It shows the flow from **Responsibility Sponsor Joint Staff** to **Acquisition Executive** and **Joint Staff Review**. A **Final document to database** is also shown.

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 contract implementation. The Acquisition Plan (AP) is a DFARS Subpart 201.71. There is no DoD-level rule that precludes the PM from preparing a single document to satisfy both the requirements 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, this 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 Prequalification Conference. 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 Objectives (SO).** Performance-based broad objectives of the training or service. The SOO contains the broad 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 must do).
- **Contract Data Requirement List (CDRL)** DoD 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.

8. COST ESTIMATING AND FUNDING.

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.

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 broadband 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.

Advanced Component Development & Prototypes includes all efforts necessary to evaluate integrated technologies as well 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.

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 design and manufacturing development phases of the life cycle.

Operational Test and Evaluation Support includes all efforts of R&D support. These funds are used to support development efforts throughout the life cycle.

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 (PCD), training in connection with PCS, movement, 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.

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 known costs to estimate the cost of your system.
- **Engineering.** A bottoms-up estimate using the detailed WBS structure to price out component 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.

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

10. LIFE CYCLE LOGISTICS (LCL).

Production, implementation, and management of a comprehensive, affordable, and effective systems support strategy within TLCMS. 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. Develop the product design for affordable system operational effectiveness. 2. Design and develop the support system utilizing performance-based logistics (PBL). 3. Acquire and concurrently provide the supportable system, including support infrastructure. 4. Maintain/improve readiness, improve affordability, and minimize logistics support. 5. 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 logisticians considerations in the systems engineering process. 6. 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, productivity, reliability, maintainability, and supportability enhancements. 7. Life Cycle Sustainment Plan (LCSPP). 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 LCSPP document, which is the plan for implementing these strategies throughout the life of the program. The LCSPP 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, managed, assessed, and reported after system fielding. By Milestone C, the LCSPP 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. 8. Performance-Based Life Cycle Support (PBL). 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. 9. Product Support Strategy (PSS). Part of the acquisition strategy, it 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. 10. Product Support Function (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 a number of sub system PSMs or product support integration

11. SUPPORTABILITY.

Production, implementation, and management of a comprehensive, affordable, and effective systems support strategy within TLCMS. 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. Develop the product design for affordable system operational effectiveness. 2. Design and develop the support system utilizing performance-based logistics (PBL). 3. Acquire and concurrently provide the supportable system, including support infrastructure. 4. Maintain/improve readiness, improve affordability, and minimize logistics support. 5. 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 logisticians considerations in the systems engineering process. 6. 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, productivity, reliability, maintainability, and supportability enhancements. 7. Life Cycle Sustainment Plan (LCSPP). 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 LCSPP document, which is the plan for implementing these strategies throughout the life of the program. The LCSPP 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, managed, assessed, and reported after system fielding. By Milestone C, the LCSPP 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. 8. Performance-Based Life Cycle Support (PBL). 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. 9. Product Support Strategy (PSS). Part of the acquisition strategy, it 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. 10. Product Support Function (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 a number of sub system PSMs or product support integration

of these five 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 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 software, 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 operators 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 DoD 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 **ITG** (mentioned above) (DoDD 8100.01) is the organizing and transforming construct for managing IT throughout the DoD.
- The **CGIG Technical Guidance (GTG)** contains a program questionnaire and compliance matrices/declaration tables that point to applicable GIG Enterprise Service Profiles (GSPs) 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.

Operational Viewpoint. Articulate the capability requirement, delivery timing, and deployed capability.

Services Viewpoint. Articulate the performs, activities, services, and their exchanges providing for, or supporting, DoD functions.

Systems Viewpoint. Articulate the legacy systems or independent systems, their composition interrelationships, and control providing for, or supporting, DoD functions.

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 (DIRS). <http://dauonline.dau.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 FPRDR for all programs.

Management of Defense Business Systems. A defense business system is an information system, other than a NSS, operated by, for, 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 DoD 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